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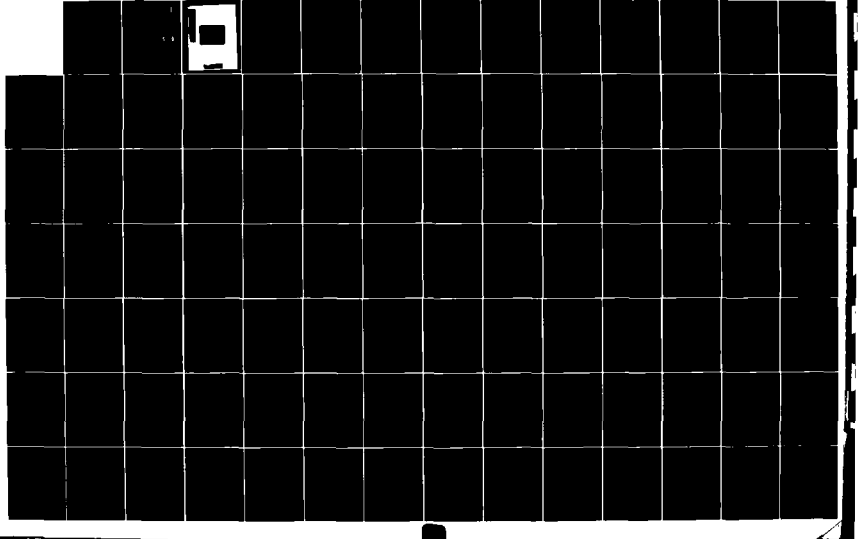

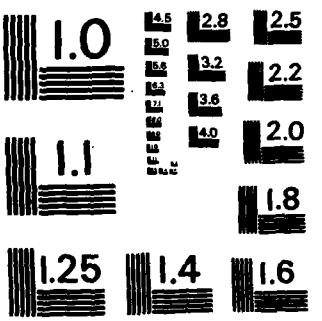

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HANDBOOK FOR LOGISTICS MANAGEMENT SYSTEMS (LMS) REQUIREMENTS DETERMINATION PLANNING PROCESS

Volume III: Level III Planning

to

DIRECTORATE OF LOGISTICS MANAGEMENT
SYSTEMS REQUIREMENTS (XRB)
DCS/PLANS AND PROGRAMS
AIR FORCE LOGISTICS COMMAND
WRIGHT-PATTERSON AFB, OHIO 45433

(Contract No. F33600-81-C-0613)

June 17, 1982

by

H. S. Sveinsson and C. O. Coogan

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This handbook documents AFLC's Comprehensive approach to Logistics Force Structure Management Systems (LFSMS) Level III planning and requirements determination and defines the relationship between planning, requirements determination, and the many efforts required to actually bring LFSMS capabilities into being. The LFSMS Requirements Determination Planning Process or model, as described in this handbook, is designed to provide an orderly method for incrementally defining LFSMS requirement that meet the overall objectives of AFLC. This volume provides step - by - step guidance to Level III LMS planners.

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PREFACE

This document has been prepared under the direction of the DCS/Plans and Programs, Headquarters Air Force Logistics Command to provide a single source of guidance to all concerned with determining Logistics Management Systems (LMS) requirements. It documents the AFLC's comprehensive approach to LMS planning and requirements determination and defines the relationship between planning, requirements determination, and the many efforts required to actually bring LMS capabilities into being.

This handbook is made up of three stand-alone volumes that address the three levels of requirements determination. It is critical to the successful use of each volume that the reader understand the relationship between the level in question and each of the other levels. It is also important that the reader understand the relationships between requirements determination and the other management activities involved in the AFLC LMS Modernization Program.

The AFLC is committed to an ambitious but orderly approach to upgrading its LMS. The ambitious nature of the program is demanded by the critical mission of AFLC in providing worldwide support in a rapidly changing world environment. An orderly approach is dictated by the expansiveness of AFLC's LMS and the importance of maintaining uninterrupted operation of the existing systems. These dual requirements have produced the need for comprehensive planning methods and highly integrated management methods to ensure control and measured progress.

There are four individual but related efforts that contribute to improved LMS capabilities. They are:

- o LMS Modernization Program. This program, under the direction of LM, is charged with providing overall management of approved projects to improve and modernize LMS. The details of that program are documented in the AFLC Program Plan for Logistics Systems Modernization Program dated 22 January 1982. That program establishes a phased plan for implementing improvements to meet the requirements of AFLC Mission Element Needs Statement for Logistics Management Systems. That program is structured

to provide programmatic and technical integration of AFLC's LMS modernization efforts that exist now or are generated either through the planning process or originating from functional needs in the field.

- Functional Configuration Management System (FCMS). This program is oriented to providing an effective means of relating the baseline LMSs that exist to the planned LMSs as they are developed. FCMS captures an explicit description of each current or planned LMS and provides a means of tracing information flows or decisions through all the LMSs. The system also provides an audit trail of planning information that will be essential in the incremental improvement approach to be used on AFLC's LMSs. The FCMS is intended to provide information to the LMS Requirements Determination Planning Process to assist in understanding previous planning decisions. It will provide a ready reference for evaluating Data Automation Requirements (DARs) and will serve as a data source for data system designers.

- LMS Design. The specific LMS improvements will be under the direction of the DCS most directly served by the LMS to ensure that the resulting systems meet the mission needs. Specific LMS improvements will be made in accordance with the AFLC ADP/T architecture which in turn complies with the LMS concept and AFLC's overall program of evolutionary improvements in LMS. If not properly integrated, the process of LMS requirements determination could be an impediment to specific system development efforts by continually adding additional requirements to approved projects. On the other hand, specific system design decisions could foreclose future opportunities for improvement. To preclude both of these problems, there must be a frequent and efficient exchange of information between the various design groups and the requirements determination groups. This goal is enhanced by direct involvement of the functional managers and LMS system designers in the LMS Requirements Determination Planning process.

- LMS Requirements Determination Planning Process. This process is oriented to translating AFLC long-range plans and management needs into specific guidance for the formulation of LMSs. This guidance is in turn used as a basis for approving DARs and initiating adjustments in the thrust of AFLC's LMS Modernization Program. The process involves a comprehensive,

top-down review of AFLC's LMS requirements that starts with AFLC's objectives and through three levels of detail works down to the performance requirements for specific LMS at the functional level. This approach ensures that the requirements are defined in consonance with AFLC's long-range needs and are consistent with the technical and fiscal realities of the planning period.

The requirements determination process does not control the development efforts, but it does provide critical inputs that guide the various LMS improvements. In essence, the LMS Requirements Determination Planning Process serves to focus the efforts of the design groups on the long-term objectives of AFLC and provides a means of identifying holes in the LMS improvement program.

The LMS Requirements Determination Planning Process

Concept

The LMS Requirements Determination Planning Process or model as described in this handbook is designed to provide an orderly method for incrementally defining LMS requirements that meet the overall objectives of AFLC. It has been organized to ensure that the needs of management at all levels of AFLC are addressed and to provide a means of accommodating various levels of requirements determination simultaneously. The process is intended to be an iterative one in which new information or objectives are incorporated as they become available and the affected elements of the process are reviewed to determine their impact on requirements.

There are five principles that have directly contributed to the organization of the LMS Requirements Determination Planning Process as defined in this handbook. They are:

- Incremental Improvement. The AFLC's LMSs are so expansive and integral to day-to-day operations that a single, one-time update is unachievable. This principle gives rise to the systems engineering approach used in the method.

- Future Orientation. The time required to develop and implement LMSs dictates that the improved systems be oriented to future needs while solving current problems.

- o User Related. Since the function of the LMSs is to serve the logistics manager (user), it is essential that the user be directly involved with requirements determination.

- o Related to, But Not Constrained by, Current Systems. The process calls for evolution from current systems to a future set of systems that can realistically be achieved. It also recognizes and incorporates the fact that many efforts are already under way which will be part of those future systems. The process as developed creates an environment for requirements determination that builds on the existing and planned systems but is not constrained by them.

- o Results Oriented. The objective of requirements determination is to facilitate improvements. Therefore, the process must promote early accomplishment of elements of the improvement while generating guidance that leads toward achievement of long-term objectives. This has been achieved in the process described in this handbook by providing for incremental output at all levels of requirements determination.

Approach

Applying the principles stated above, the following overall approach has been developed:

- o Develop a functional description of AFLC. This was done by breaking AFLC's mission down into basic functions that describe "what" AFLC does rather than "how" it is done. These basic functions have been grouped together in Logical Application Groups (LAGs) which form a convenient set of modules for requirements determination.

By definition, the LAGs are highly self-contained regions of the AFLC mission which consist of sets of highly interactive activities. The criterion applied in the identification of the boundaries of the initial set of LAGs was the intensity of the interactions and relationships among the logic clusters (task dependencies). It is anticipated that additional criteria, such as mission structure, related ADP technology, management, and task descriptions will be used to modify the original LAG boundaries.

The LAGs represent a convenient means of encouraging and contributing to change in AFLC logistics management systems. They provide a stable,

mission-oriented definition of AFLC. They group AFLC tasks in subsets that have common needs for information. They define the logistics functions to include both automated and non-automated information flows. Frequently, the LAG boundaries cut across traditional management boundaries and demonstrate the need for well controlled flows of information between organizations at both high and fairly low levels and within these organizations. In some cases, such as Plan, Program, and Budget, the LAG includes functions from all organizations under a central activity (e.g., all planning functions under a central planning authority). LAGs are not logistics management systems; they are a definition of regions from which logistics management systems can be developed.

Development of an LMS Requirements Determination Planning Model

The model or method developed consists of three levels of examination of AFLC's requirements. While each level is described in an individual volume of this handbook, the relationships and interdependencies between levels are very strong.

Logistics management systems are tools to improve decision making so that scarce resources can be effectively and efficiently used to achieve organizational objectives. LMSs, therefore, are not ends in themselves, but are used to achieve specific goals. In order to plan for the LMSs on these bases, the planning process has been divided into three levels.

Level I - Establishment of LMS Objectives

At the first level, the objectives of the organization, AFLC, are to be clearly identified so that any LMS developed is supportive of the overall mission of the Command. While the formulation of Command objectives is not the charter of the planning group, it is necessary to identify these objectives so that design can proceed in an orderly fashion.

The coordination of all the individual planning activities is absolutely essential in any incremental, modular design. The overview of all LMS planning, as well as the incorporation of Command objectives, has become known as Level I.

Level II - Process or Perspective Review

Because of the practical need to divide the LMS renewal into manageable pieces, the second stage in the planning process, known as Level II, was designed to divide the functions required of the Command in achieving its mission into eleven discrete elements, known as processes. Although there is some overlap of tasks between processes, the eleven selected designations are groups of functions which cover the mission tasks of AFLC. Some sets of tasks, such as those required for weapon system management, occur in a matrix fashion, representing integrating activities which occur across processes. Six such groupings, referred to as perspectives, have also been identified.

Table 1 lists the eleven processes and six perspectives which currently represent the total AFLC mission.

TABLE 1. AFLC PROCESSES AND PERSPECTIVES

Processes	Perspectives
Plan, Program, and Budget	Wartime Surge
Acquisition	Item Management
Identification	Weapon System Management
Requirements	Quality Assurance
Allocation	Equipment Specialist
Custody Management	Production Management Specialist
Movement	
Maintenance	
Improvement	
Process Support	
Accounting	

This level uses the LMS change objectives as the basis for review of the functions of AFLC and the selection and prioritization of modules of the system for detailed review. Level II translates broad AFLC change objectives to specific, function-related change objectives with due consideration to advances in ADP/T technology and the future of the specific functions.

Level III - LAG/Module Requirements Determination

Level III planning represents a further breakout of the processes and perspectives. Smaller modules, known as Logical Application Groups (LAGs), have been identified at this level. Although normally contained within a process, LAGs are not confined by definition to a single process, but rather represent a logical grouping of functions which share information. The LAGs are the level at which management systems can logically be developed and implemented. Designing LMS at this level should result in reaching a balance between a single massive system (as in ALS*) and a highly interconnected but not necessarily well-planned set of systems (the current situation).

At Level III, the specific objectives of critical LAGs are translated into required improvements to existing LMSs to produce the LMSs of the future within that LAG. The output of this level is a Required System Capability (RSC) that is relatable to AFLC's mission, objectives, and perceived future.

Figure A illustrates the relationship between the three levels.

Organization of the LMS Requirements Determination Handbook

This handbook is organized in three volumes, each corresponding to a level of requirements determination. Each volume is a stand-alone document which contains the full set of guidance to successfully acomplish that level. In addition, each volume contains a brief introduction that explains how that volume is organized and how that volume relates to the other two. It should be emphasized that each volume is dependent on the others if a true top-down approach to requirements determination is to be realized. Interactions between levels and utilization of feedback between levels is essential to the success of this program.

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* Advanced Logistics System

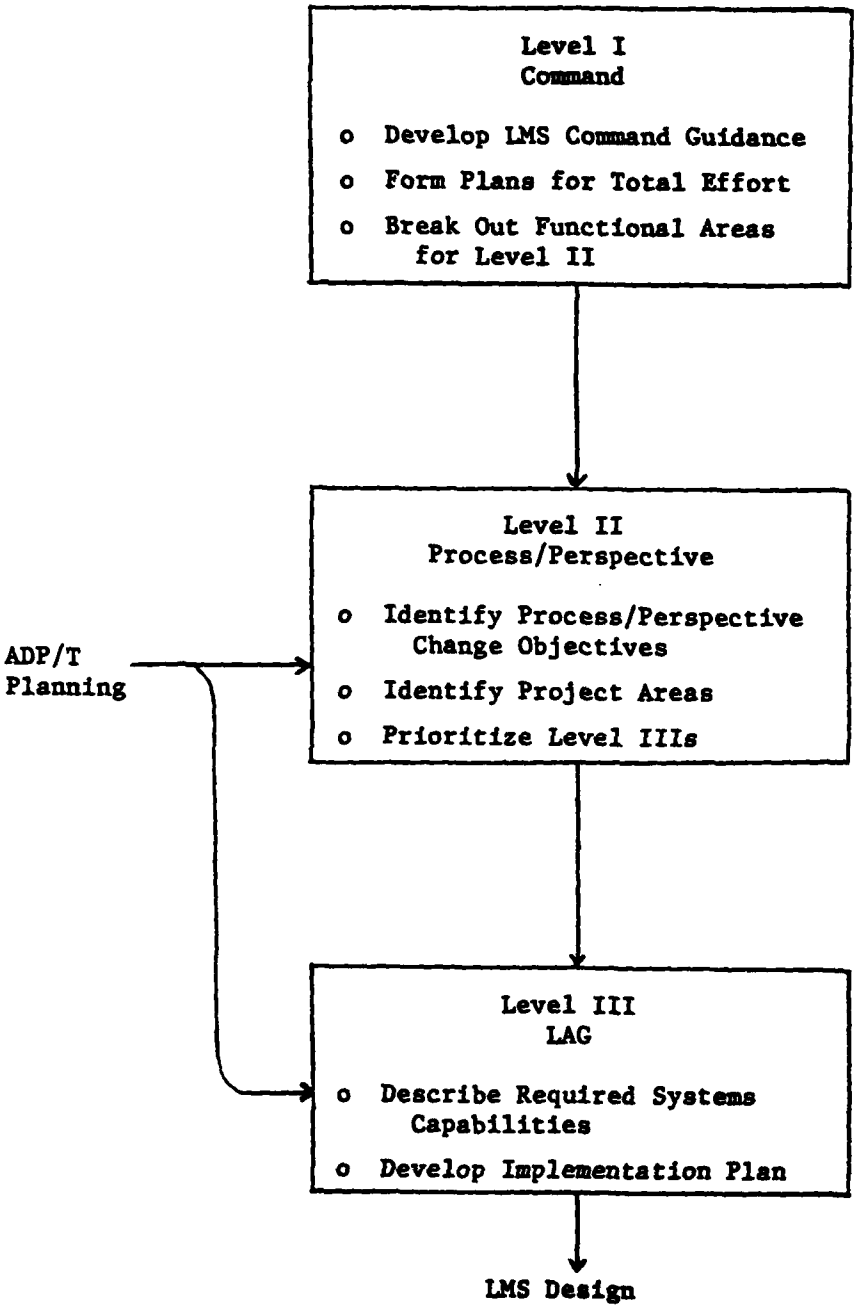

FIGURE A. REQUIREMENTS DETERMINATION PLANNING PROCESS

HANDBOOK FOR LOGISTICS MANAGEMENT SYSTEMS (LMS)
REQUIREMENTS DETERMINATION PLANNING PROCESS

Volume III: Level III Planning

June 17, 1982

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Columbus Laboratories

CHAPTER I
THE LEVEL III PLANNING MODEL

This volume of the handbook provides information and procedures to carry out the third level of a three-level AFLC planning process that is structured to provide the basis for the design of the Logistics Management Systems of the next decade within AFLC. Volume I and Volume II describe the two preceeding levels of the planning hierarchy, respectively, and the procedures described in Volume III make use of and depend upon information generated by the preceeding levels--in particular, Level II.

This volume is organized into ten chapters which provide step-by-step guidance to Level III LMS planners. Chapter I provides an integrated overview of the LMS Requirements Determination Planning Process. Chapter II through Chapter X then describe the key activity blocks of the model in detail.

The following sections provide background essential to Level III Logistics Management System (LMS) planning by giving a summary overview of the three-level AFLC LMS Requirements Determination Planning Process and the Level III planning model. An orientation is provided on the overall documentation flow and correlation between the internal products of the Level III process and paragraphs of a formal AFLC Required System Capability (RSC) document. Configuration management requirements are addressed briefly, as are generic staffing roles and manpower.

Overview of the LMS Requirements Determination Planning Process

The LMS Requirements Determination Planning Process (RDPP) is designed to provide AFLC with an incremental modernization of LMSs, whereby modular system development is accommodated within a periodically updated AFLC Logistics Management/Logistics Management System requirements framework. The three levels of the LMS Requirements Determination Planning, as shown in Figure 1, are designed to address the development of this modernization framework by focusing on three separate, but consistent, levels of AFLC's operations:

- Level I - Addresses AFLC command-wide issues, such as future environment and future command capability requirements; command objectives, policies, and principles; Logistics Management (LM), Logistics Management System (LMS), and Automated Data Processing/Telecommunications (ADP/T) concepts. Level I develops an overall plan for conducting and controlling LMS requirements determination planning at Level II, including resource needs and schedule for Level II planning efforts.

- Level II - Focuses on LMS requirements planning for logistics process (e.g., Maintenance, Improvement) and logistics perspective (e.g., Weapon Systems Management) level; identifies current and future capability requirements; identifies capability shortfalls and objectives; defines and evaluates alternative strategies to meet the objectives; and divides the process/perspective functions into Logical Application Groups (LAGs) to be addressed by Level III planning. Level II develops the resource estimates and schedule for the Level III LAG planning efforts, and obtains approval.

- Level III - Completes the three-level planning hierarchy by focusing on a given LAG and by integrating LAG functional area expertise with guidance on capability, objectives, and policy from Level II to identify a substantive LMS-required systems capability. This requirement is determined through the generation and evaluation of alternatives to satisfy LAG-related change objectives which are developed in the Level III process. The key planning product resulting from a Level III LAG requirements planning activity is a formal Required Systems Capability (RSC) document, and an LMS Development Plan.

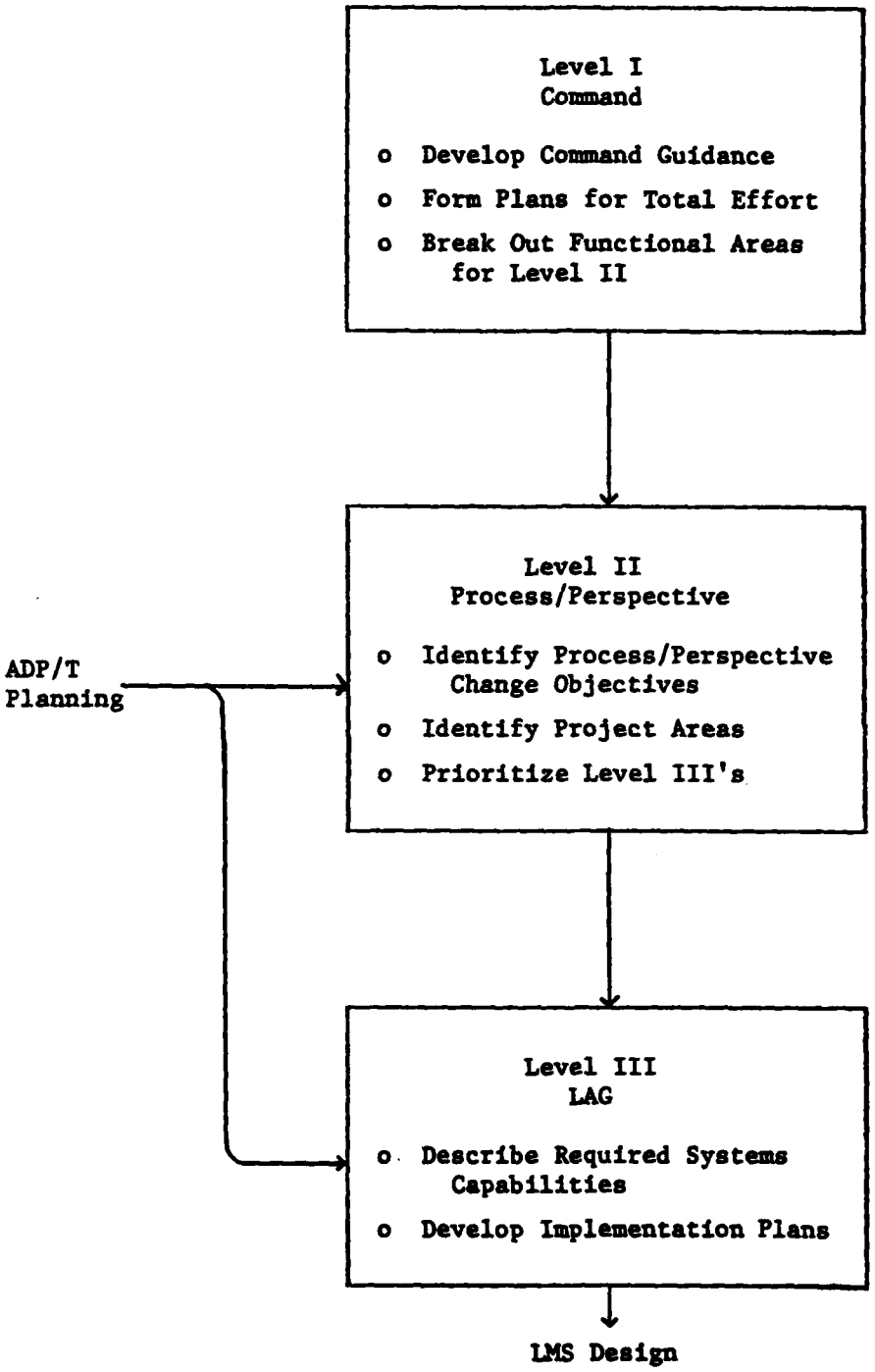

FIGURE 1. REQUIREMENTS DETERMINATION PLANNING PROCESS LEVELS

Activities Within the Level III Planning Model

The planning activities that constitute the Level III LMS RDPP Model are shown in block diagram format in Figure 2.

The process is conceptually straightforward and is divided into nine major activity blocks as shown in Figure 2. The basic purpose of each block is as follows:

- o Block 1. Definition of the current functional, information, and decision framework of the LAG. This ensures that the planning proceeds from a defined, common reference view of the LAG

- o Block 2. Identification of both current and future Logistics Management System related needs based on analysis of Level II (Process) input, current needs known to the LAG planners, and evaluation of command futurity guidance

- o Block 3. Ensuring that the planning is cognizant of constraints or opportunities provided by policies, principles, and doctrine that affect the operational characteristics of the LAG functions and decisions

- o Block 4. Analysis of the needs (from Block 2) and translation of these into change objectives that address the needs either singly or in some appropriate combinations. Definition of alternative LMS-oriented approaches that will meet some or all of the objectives

- o Block 5. Definition of criteria and formulation of an evaluation framework for choosing an LMS development approach for the LAG

- o Block 6. Definition and assignment of "scores" (qualitative and/or quantitative) into the evaluation framework for each alternative LMS approach identified in Block 4 to lay the foundation for selection of the preferred one

- o Block 7. Ensuring that configuration control procedures are satisfied for the initiation of the ensuring LMS definition and development effort based on the selected LMS approach

- o Block 8. Selection of the preferred LMS approach based on the evaluation, definition of an LMS implementation plan, and development of an RSC

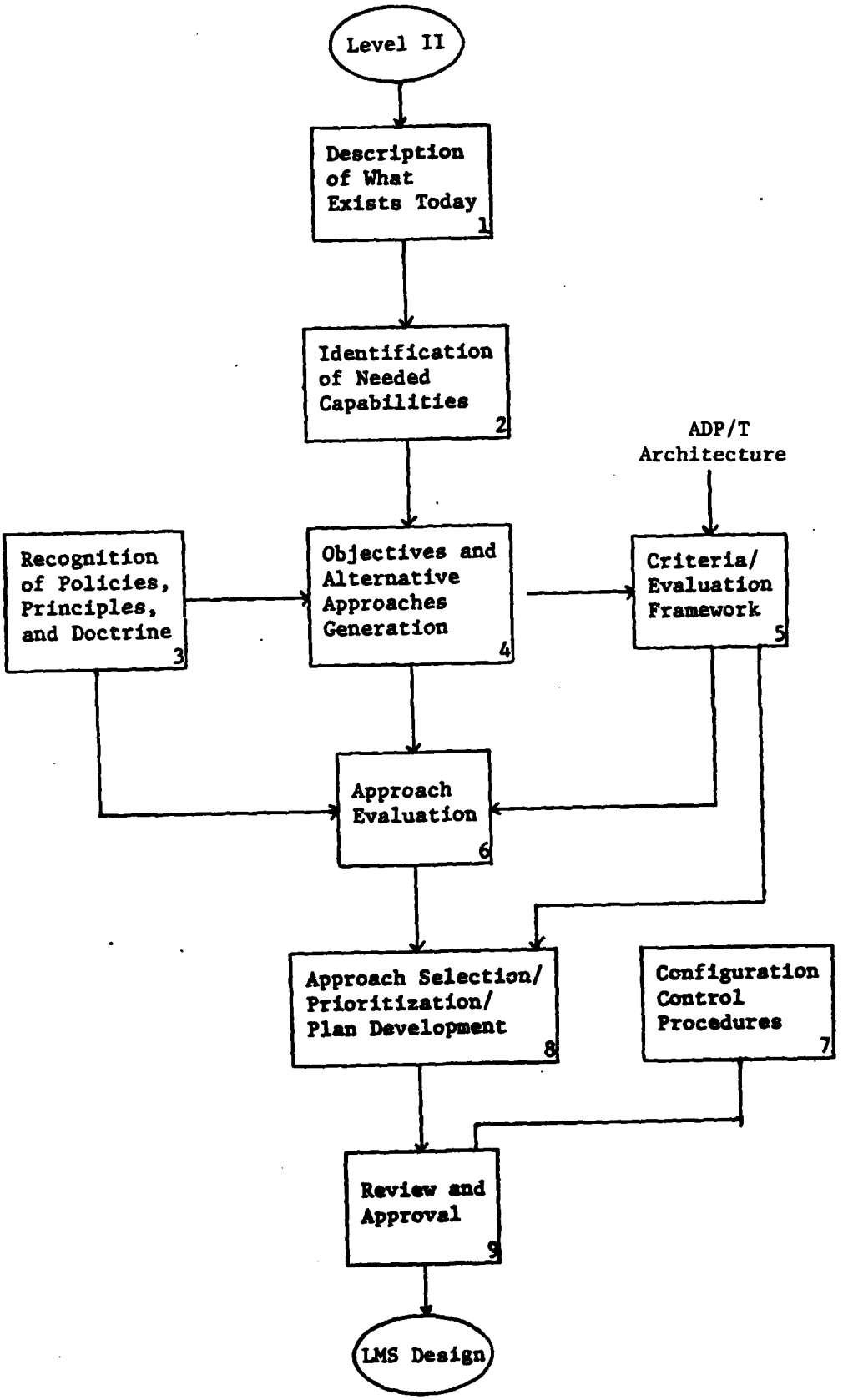

FIGURE 2. LEVEL III REQUIREMENTS DETERMINATION PLANNING PROCESS FLOWCHART

- o Block 9. Final Review and approval of the LAG LMS concept and implementation plan, including commitment to schedules and resource requirements.

A more detailed flowchart of the Level III LMS RDPP process is found in Attachment 1 which is contained in the envelope attached to the back of the handbook.

Process Documentation Flow

The main outputs of the Level III process are the formal RSC and the plan for LMS development as indicated above. A series of intermediate documentation products contribute to these documents, however. These are:

- o Functional definitions and interaction for the LAG
- o A list of capability requirements for the LAG including shortfalls indicating inability to meet some or all of those requirements
- o A list of change objectives which when met eliminate one or more shortfalls
- o Alternative LMS development approaches that will satisfy a set of (or all) the objectives
- o Criteria for selecting LMS approaches and defining development plans
- o An optional LMS approach concept document supplementing the RSC for guidance to further system definition. This is called a "conceptual DAR".

Attachment 2 shows the overall documentation flow associated with Level III, including the key inputs. Further details are provided in the description of each individual block as indicated parenthetically in the diagram by reference to specific figures in the activity blocks. Attachment 2 is contained in the envelope attached to the back of the handbook.

Correspondence of the Block Output to the RSC

The correspondence of the intermediate Level III process outputs to the RSC will be identified in each block description. However, an overall awareness of this relationship will be useful to the planners, so that

the intermediate documents can be oriented towards incorporation into the prescribed RSC structure and format (as defined in AFLC Reg. 400-5) with minimum modification. The correlation is as follows:

- Block 1 - Description of What Exists Today - provides information needed for Paragraph 5 of the RSC
- Block 2 - Identification of Needed Capabilities - provides information needed for Paragraph 6 of the RSC
- Block 4 - Formulation of Change Objectives and Identification of Alternative Approaches - provides information needed for Paragraphs 2 and 7 of the RSC
- Block 6 - Approach Evaluation - provides the alternative comparison required for Paragraph 8 of the RSC
- Block 8 - Selection of an Approach - provides the identification of the solution for Paragraph 9 of the RSC.

The AFLC Functional Configuration Management System (FCMS)

The basic purpose of the Level III Requirements Determination Planning Process is to facilitate the translation of current and future logistics management systems capability requirements into approved projects. As this takes place within a dynamic command-wide AFLC planning environment, it is clear that a control mechanism is required to ensure consistency of products, conformance to key guidance, and closing of horizontal and vertical information interfaces. Because of the scope of the problem, manual methods alone will not satisfy this need.

AFLC/XRB has addressed this need by instituting a computer-based AFLC Functional Configuration Management System (FCMS) that provides consistency checking, maintains audit trails, and eventually provides automated support for a considerable portion of the process documentation requirements. The FCMS is critical to the LMS project approval and justification process because LMS requirements determination planning affects a substantial portion of AFLC's operations. It serves the role of providing audit trail/rationale support for LMS projects to higher authority (USAF/DoD/Congress), and providing a planning data repository and an interface consistency/completeness evaluation tool to support the LMS requirements determination planners.

A part of the interface control function of FCMS will be the recording of pending or "queued" interface/data requirements between processes or LAGs which need to be addressed when the functions involved are addressed in a planning activity. It will provide flagging of these, with a reference to the appropriate Memorandum of Agreement (MOA) that established each queued requirement.

The procedures for the individual planning blocks include certain stipulations for information and information relationships that conform to the needs of the FCMS. It should be stressed that these also assist the planners in ensuring that their results and recommendations are consistent within the Logistics Process/LAG relationships directly at hand, as well as being supported within the overall AFLC LMS planning and development universe as time goes on. FCMS will thus serve to preserve the integrity of the individual LAG planning efforts.

The XRB Division Chief who is assigned XRB responsibility for the particular LAG planning effort is responsible for ensuring that minimum FCMS information requirements are provided through the planning documentation.

The XRB FCMS Manager will be responsible for day-to-day operations of the FCMS system, ensure that data from planning efforts is entered into FCMS, and establish and issue procedures to ensure interface between efforts.

At the present time, interactive data entry and access capability to the FCMS is not available to the planners. Automatic data recording, and data consistency checking capability is therefore not available directly to planners during planning activities. Some of the manual planning data recording formats indicated in this manual may eventually be made obsolete as FCMS evolves, but are currently required to ensure information capture and data consistency.

Staffing Roles and Generic Manpower Requirements

The success of any effort is heavily dependent on the availability of the proper talent and resources to carry it out.

While each Level III LMS planning effort is different, a rough estimate of the type of talent and effort required to accomplish the work can be given based on experience to date. Staffing is required from the functional area that is responsible for the LAG, as well as from XRB.

Functional Area Staffing

The role of the functional area analysts is to do the actual LAG planning in terms of functional description; requirements and objectives definition; approach development, evaluation, and selection; as well as generating documentation and developing the RSC and the LMS development plan.

It is imperative that one key functional expert be designated full-time to the effort as the lead LMS planner for the LAG. This individual should possess a solid knowledge of the functions and operational environment bounded by the LAG, as well as a good knowledge of the interactions between the LAG and other key logistics activities. This person is likely to be or have recently been in a mid-level management function at an ALC in the functional area of the LAG and should possess overall knowledge of the Level II plan for the Process. This individual should be expected to be required for a period of three to four months (nominal).

Additionally, a support team of three to five individuals with intimate knowledge of internal LAG functions and interfaces, both internal to LAG and external, needs to be designated as a resource group to provide specific expertise, insights, and technical currency to the key functional planner. These individuals are not required full-time but need to be made available to the lead planner as and when required. They would likely be currently involved directly in the LAG functional area at an ALC on a day-to-day basis. A total commitment of three to four man-months for the whole support team is nominally to be expected.

An upper-level management person with current functional awareness and knowledge of the broad functional, operational, political, and financial environment is needed to participate in validation and review of intermediate products. Approximately one man-month of effort for this functional area LAG planning reviewer is required.

The above thus adds up to a nominal duration for a Level III Requirements Determination Planning effort of three to four months, involving a commitment of approximately seven to nine man-months of functional area expert effort.

XRB Staffing

XRB's role is to provide guidance on the planning procedures to the Level III effort to ensure adherence to the overall intent of the planning process; provide guidance and enforcement of planning documentation requirements; and ensure compatability and information compatability between interrelated process and LAG planning activities. The latter includes conformance to FCMS documentation requirements. An XRB Management Team consisting of the Division Chiefs and Deputy Director has been designated to coordinate overall LMS planning activities and to provide for resolution of conflicts. They will escalate problems to the DCS Level, if necessary, to provide solutions to problems.

XRB will assign one analyst to support a Level III effort for the duration on not less than a half-time basis. This individual must be cognizant of the Level II parent process plan, FCMS information requirements, and the overall Level III planning process.

TDY and travel requirements are dependent on the makeup of the functional area team and geographic locations. They must be considered in any manpower and resource commitments, however.

Finally, it is re-emphasized that the above is only a generic estimate. The final scoping of each LAG effort takes place based on the output from the appropriate Level II effort, and the LAG definition and phasing plan included therein.

CHAPTER II
BLOCK 1: DESCRIPTION OF WHAT EXISTS TODAY

The purpose of the activities in Block 1 is twofold: (1) To develop a baseline view of the current functional, decision, information, and organizational characteristics of the LAG; and (2) to identify functional interfaces and information flows to and from other LAGs, logistics processes, and other entities (internal or external to AFLC).

It should be stressed that the major LAG functions, functional boundaries, and overall LAG interactions have been defined in Level II. Also, the Level II planning will have identified LMS-related shortfalls at the process/perspective level for the major parent process or perspective functions. This will have been entered into the FCMS for documentation and configuration management purposes and will be made available to the LAG planners as the starting point for the Level III effort.

A key requirement to bear in mind is that Level III planning must support and expand on Level II planning and thus complement it in a traceable, consistent manner rather than present a conflicting or a diverging view. The LAG functions or function logic clusters* defined in Level III must correlate to functions as they were defined in the Level II activity, as should decisions, organizations, and information flows. This does not preclude corrections of errors in Level II views, or changes that may arise due to improved perspective, which will be resolved via configuration management procedures.

The following subsections describe the inputs, process, and outputs of Block 1 in more specific terms.

Block 1 Inputs

The major input to Block 1 of Level III planning is the LAG definition documentation produced by Level II. This consists of a functional summary chart (similar to Figure 3), which provides an overview of the LAG breakout of the parent process/perspective, and a more specific chart (similar

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* For definition of terms, see Glossary.

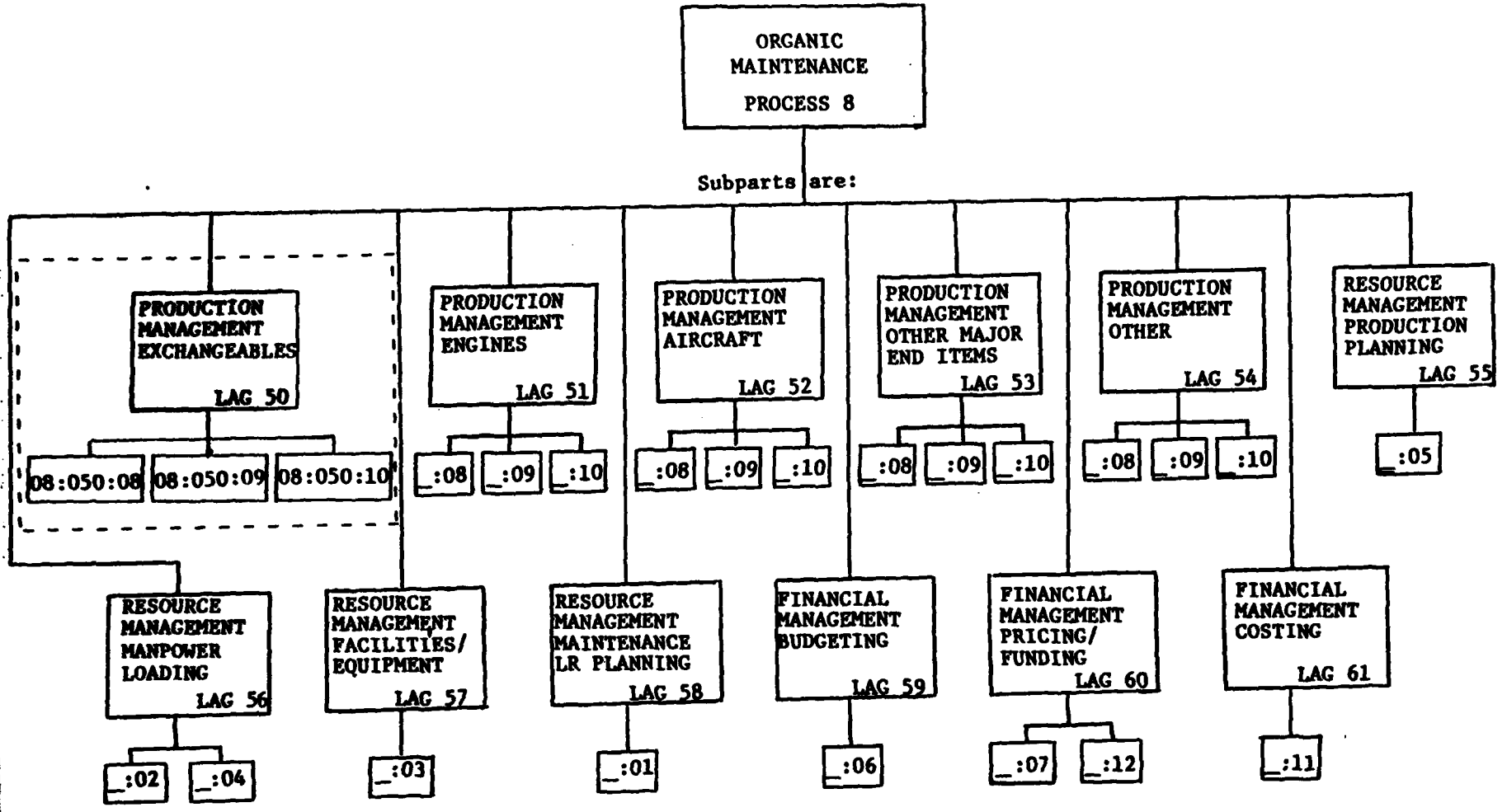

FIGURE 3. OVERVIEW OF PROCESS LAG BREAKOUT FROM LEVEL II

to Figure 4), focusing on the major (Level II) LAG functions and their interactions:

a) Internal to the LAG
b) To other LAGs within the parent process/perspective
c) To other processes and LAGs
d) To other AFLC "non-LAG" activities and organizations
e) To activities and organizations external to AFLC.

Figure 4 will be supplemented as necessary by tables detailing the specific types of interactions involved in the Level II view for each category. Figures 5 and 6 show representative tables.

For each Level II function, information will also specify the key decisions made, the specific information inputs and outputs for each decision, as well as the responsible organizations. Figure 7 shows an example.

Block 1 Outputs

The functional, decision, and organizational flowcharts and associated work documents generated as part of the Block 1 planning activities (see below) constitute source documents that will be used by the planners as the reference baseline definition of the LAG for the rest of the Level III planning.

Based on the Block 1 planning information, two types of formal outputs are required. The first is a complete tabulation of the LAG functional definitions in a form shown in Figure 8. These are the subfunctions broken out from the Level II process functions for the LAG, as discussed below. The numbered information entries are as follows:

(1.) A seven-digit and one-alphabet character code that uniquely identifies the Level III LAG function, the parent Level II function, the LAG it is in, and the Logistics Process

(2.) A descriptive title

(3.) A code within a LAG to indicate LAG functions that are tightly grouped from a functional, informational, and decision perspective--functions that are "logically" grouped in terms of management system support requirements

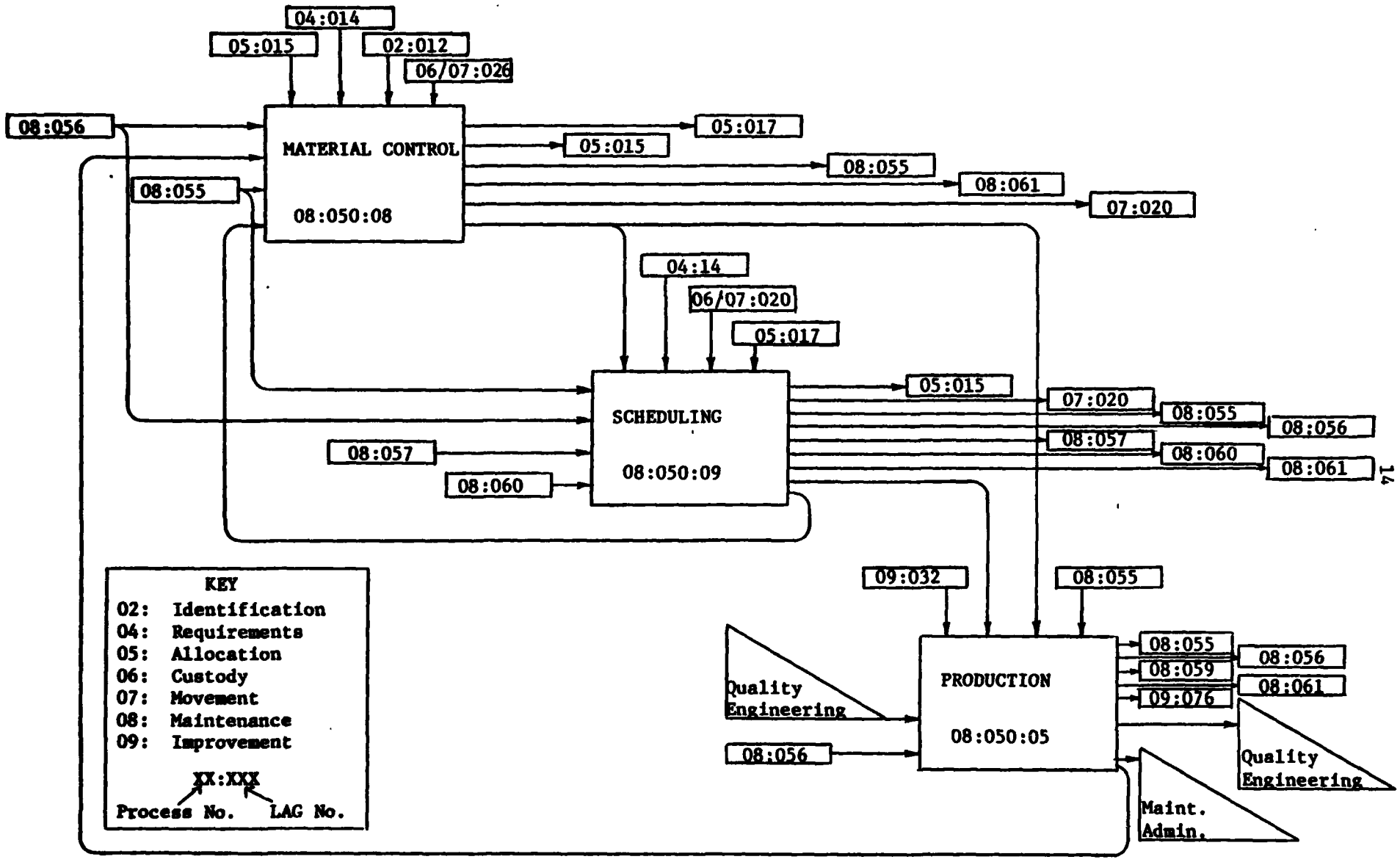

FIGURE 4. OVERVIEW OF LAG FUNCTIONAL INTERACTIONS FROM LEVEL II PLANNING

LAG Number: 50 LAG Title: PRODUCTION MANAGEMENT, EXCHANGEABLES

Parent Process: MAINTENANCE

Process	LAG	Interface "Title"	LAG Functions		
			Scheduling	Material Control	Production
Allocation	15	Asset requisitions	Output		
		Supply status		Input	
		Issue data		Input	
		Requisition and parts shortages		Output	
	17	Material issues/turn-ins		Output	
		Material receipt acknowledgment/adjustment		Output	
		Parts projections		Output	
		Asset availability	Input		
		Production item issue/turn-in data	Input		
Movement/Custody	20	Production item custody/receipt	Input		
		End-item turn-in	Output		
		Material turn-in		Output	
	26	Material custody receipt		Input	
Requirements	14	Priority work requirements	Input	Input	
Identification	12	Cataloging data		Input	
Improvement	22	Tech orders			Input
	76	66-1 data/TDR data			Output

FIGURE 5. LAG INTERFACES TO LAGS IN OTHER PROCESSES

LAG Number: 50 LAG Title: PRODUCTION MANAGEMENT, EXCHANGEABLES

Parent Process: MAINTENANCE

Process	LAG	Interface "Title"	LAG Functions		
			Scheduling	Material Control	Production
Maintenance	55	Labor standards	Input		Input
		Work control document/237/route document	Input		
		Temporary work plans	Input		
		Tech data status	Input		
		Projected routed item requirements	Input		
		Completed work control documents/237/route document	Output		
		Facility/equipment overage/shortage	Output		
		Production problem notice	Output		
		Material standards		Input	Input
		Material standards adjustments		Output	
		Backorder information		Output	
		Facility projects and equipment acquisition status			Input
		Engineer drawings			Input
		Projected equipment/facilities shortages/overages			Output
		Request for methods/standards analysis			Output
		Projected skills imbalances and training needs			Output
	56	Programmed workloads quarterly negotiated requirements	Input		
		Repair requirements change requests	Output		
		Skill imbalances	Output		
		Request for overtime	Output		
		Temporary additional resources capability request	Output		
		Workload schedules	Output		
		Planned negotiated repair workload		Input	
		Planned and negotiated work requirements			Input
		Manpower authorizations			Input
		Labor exception and time/attendance data			Input
		Projected manpower overage/shortage			Output
		Labor exceptions			Output

FIGURE 6. LAG INTERFACES TO OTHER LAGS WITHIN PARENT PROCESS

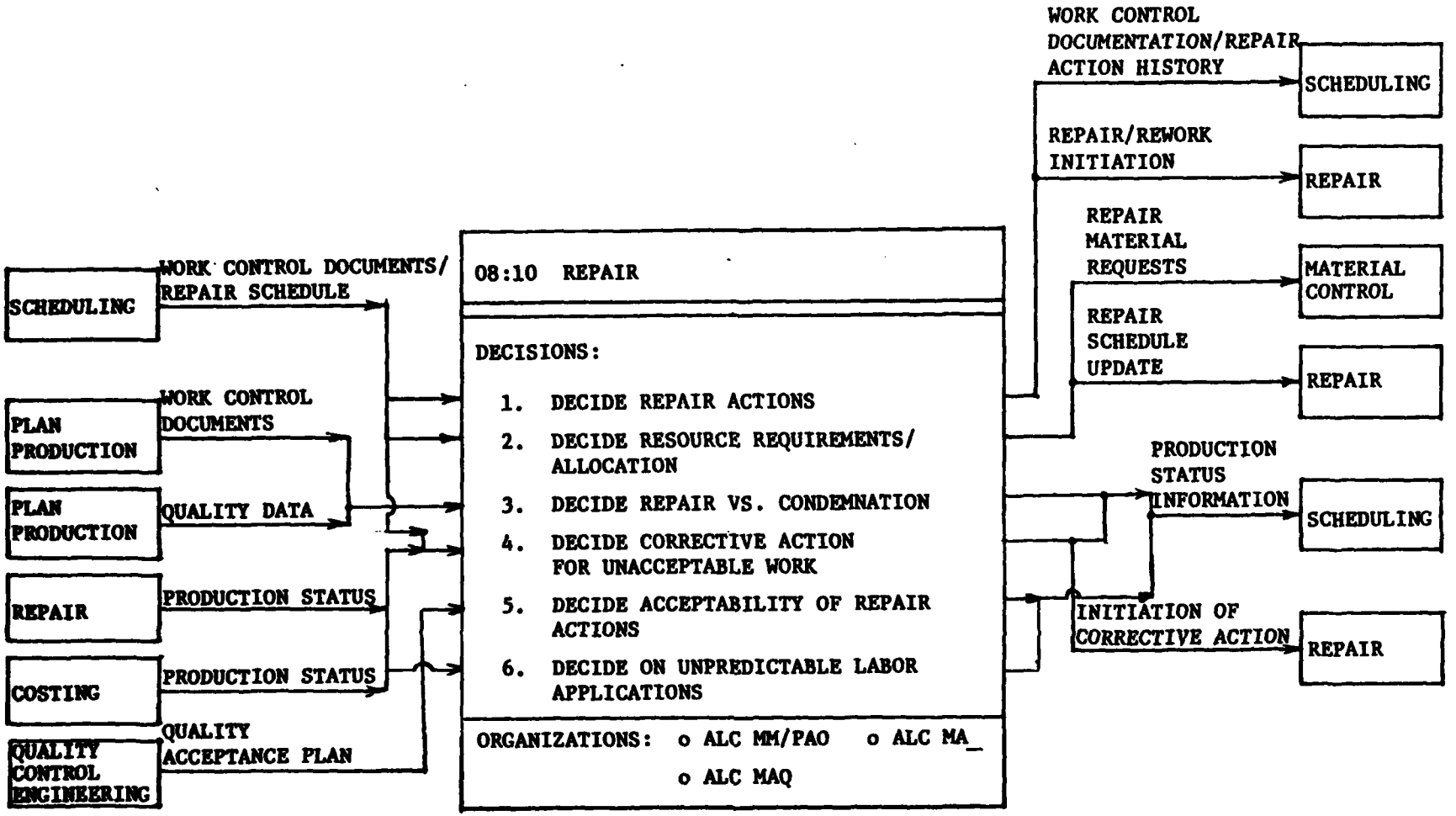

FIGURE 7. A LEVEL II FUNCTION DECISION INFORMATION AND ORGANIZATION CHART

① LAG Function Number: 08:050:08:C

② LAG Function Title: Material Receipt & Storage

③ Logic Cluster Indicator: X

④ Performing Organizations: ALC MA_S

⑤ LAG Function Narrative:

⑥ Decisions	⑦ Interface Title	⑧ Source			⑨ Destination		
		Process/LAG Number	Other (Inside AFLC)	Other (Outside AFLC)	Process/LAG	Other (Inside AFLC)	Other (Outside AFLC)
Decide Validity of Material Receipt	Material Requisition Suspense	08:050:08:B					
	Material Custody Receipt	Movement (XX:XXX:__)					
	.	.					
	.	.					
	.	.					
	.	.					
	.	.					
	Material Receipt Adjustments				08:050:08:B		
Decide Storage/Delivery Location	Material Custody Receipt	----------					
	MIC Inventory Records	----------					
	.	.					
	.	.					
	.	.					
	.	.					
.	.						
.	.						
.	.						
.	.						

18

FIGURE 8. LEVEL III LAG FUNCTION DEFINITION FORMAT

4. The major organizations involved in the function and its decision-making

5. A brief narrative of the nature of the function, stressing what is done and why it is needed

6. A listing of each identified decision made in this function

7. For each interface to the decision, a descriptive (input or output) title (e.g., "backorder status information" which defines an identifiable information or data element in the operational sense)

8. The inputs are identified as to their source (process/LAG, to the extent available, function code XX:XXX:__). If the input source is not within the Logistics Process/Perspective LAG arena, whether internal to AFLC or external to AFLC, the source name is entered in the appropriate column

9. Similarly, for each decision within a function, interfaces that are outputs from the decision have the information destination identified by name and number (process/LAG) or by name and differentiation as to whether it goes inside or outside AFLC.

The second required output from Block 1 is a concise description of the current view appropriate to the requirements of Paragraph 5 in the RSC document (as per AFLC Reg. 400-5).

Block 1 Procedures

The activities to complete Block 1 are detailed below. The procedures to accomplish these will vary in detail depending on the makeup of the functional area team, their geographic location, and resources available. The lead LAG planner is the key functional area participant and responsible for the overall accomplishment of the work. The XRB analyst is responsible for ensuring that the lead LAG planner is familiar with the planning procedures and documentation requirements. He will also orient the planning support team on their roles and responsibilities.

Prior to the start of any formal planning activities, the XRB analyst and the lead LAG planner will jointly review the Level II output information to ensure that it is complete, comprehensive, and available to all participants.

A general approach to be followed is to precede any project workshops and meetings with the development of preliminary "strawmen" views of the functions or decisions to be discussed, reviewed, or expanded. The lead LAG planner will either produce these himself with aid from the support team and the XRB analyst (for form, content, or Level II input), or assign different portions to support team members as he deems appropriate.

Activity 3.1 Identify Current Functions and Functional Interactions of LAG

The first formal planning activity in Level III is the breakout of the Level II LAG functions into "subfunctions", and identification of how they interact internally and to the external environment. This breakout should be a "natural" division for the LAG based on the current day-to-day operations of the LAG functions. Experience shows that a breakout of each Level II function into three to six subfunctions provides information at the appropriate level of detail for Level III planning. Figure 9 shows an example of a function-to-subfunction breakout from Level II detail to a more detailed Level III description. A short narrative should be produced to define each subfunction.*

The lead LAG planner should be able to accomplish this without need for formal assistance from the support team, although their input/concurrence may be called for.

The functional numbering scheme to be used (as in Figure 9) follows directly from that of Level II. As it is broken out, each function is assigned a unique alphabetic designator that is appended to the seven-digit Level II function code for the function from which it derives.

Once the functional breakout is completed, the functional interactions internal to the LAG, to other LAGs/processes, to other activities, and external to AFLC will be identified. These will be derived from the Level II inputs, but will be at a level of detail appropriate to the newly defined LAG functional breakout, as well as showing interactions amongst the LAG functions not identified before.

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* After this, unless otherwise specified, the Level III "subfunctions" will be referred to simply as Level III or LAG functions, where it is understood that they are subfunctions of the Level II major process/perspective function.

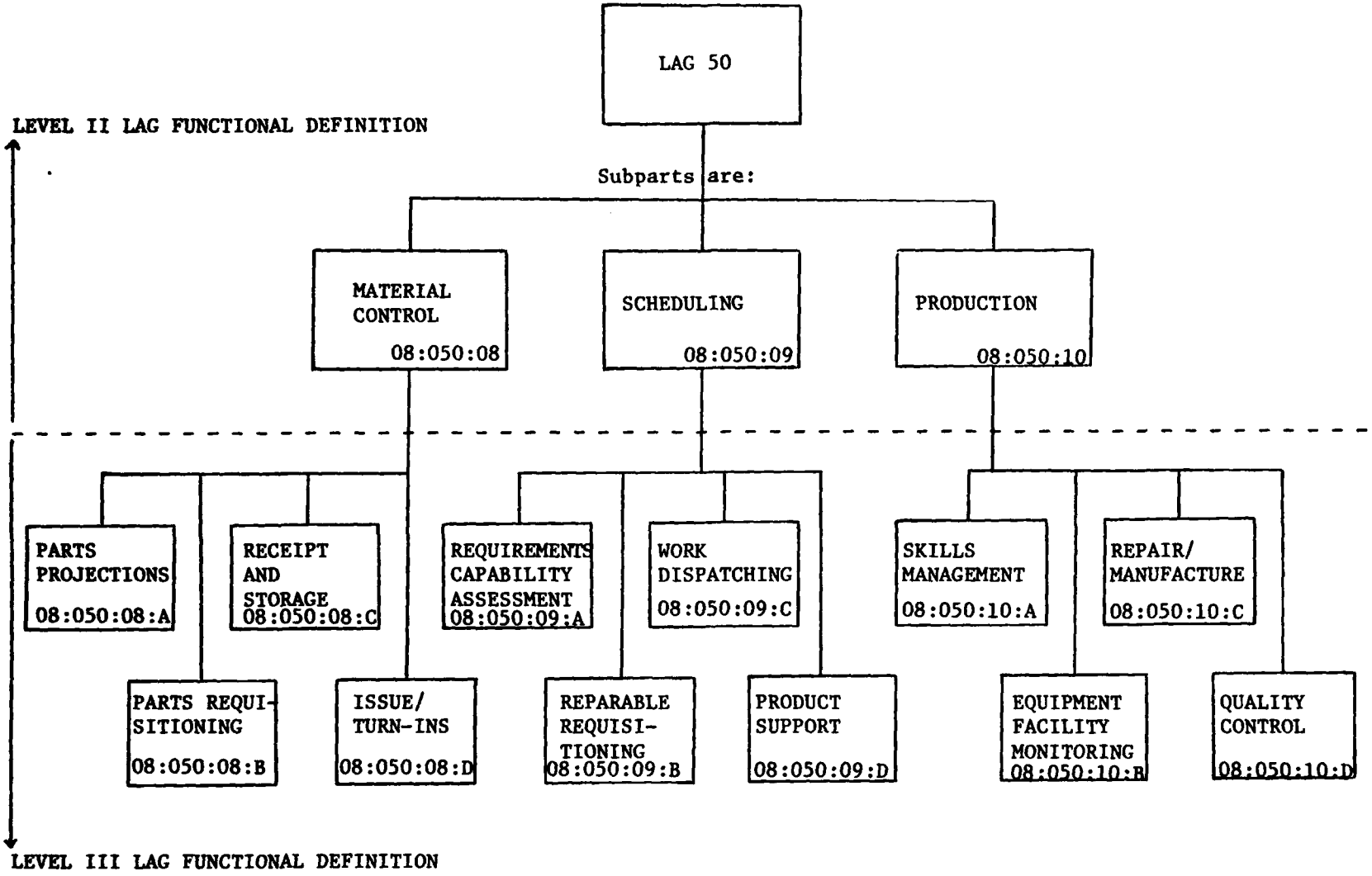

FIGURE 9. EXAMPLE OF FUNCTIONAL BREAKOUT FROM A LEVEL II LAG DEFINITION TO A LEVEL III LAG DESCRIPTION

For working and review purposes, it is recommended that these be initially documented in a flowchart format similar to that shown in Figure 10. Because of the complexity of most LAGs, it is likely that more than one interaction chart will be needed to capture the information. The lead LAG planner, with assistance from the XRB analyst, if required, should develop an initial strawman LAG interaction flowchart, which he then segments out to the support team for completion/expansion in accordance with the expertise of each. Each support team member then fully develops his portion of the flowchart, using the "strawman" overview both for perspective and to note changes to interfaces to other LAG segments or external to the LAG.

The lead planner serves the role of collector and reviewer of this information as it is produced. At the conclusion, a joint workshop session will be held involving all the functional area planners to resolve any outstanding interface issues and ensure a consistent product.

A further and broader consistency check will also occur when this information is fed into FCMS. These flow diagrams are a key source of the interaction information required by FCMS (as shown in Figure 8 above).

Activity 3.2 Define Current Decisions Made Within the LAG Functions and Associated Information Flows

This activity focuses in more detail on the key logistics management decisions made within each LAG function. These decisions are identified here along with the key information required for each decision, the source of the information, the main information outputs of the decision, and the destination of the output. The information flows, sources, and receivers should be identical to, or subsets of, the corresponding data identified in Activity 3.1. Any such subset relationships should be identified for consistency control. The goal of this activity is to identify the decision/information structure within the LAG sufficiently to allow the planners to consider decision implications of LMS modernization approach alternatives later in the Level III planning process.

The LAG functions should be reviewed on a function-by-function basis, and the decisions, their specific key inputs, and outputs recorded on worksheets. An example is shown in Figure 11 which corresponds to the third subfunction in

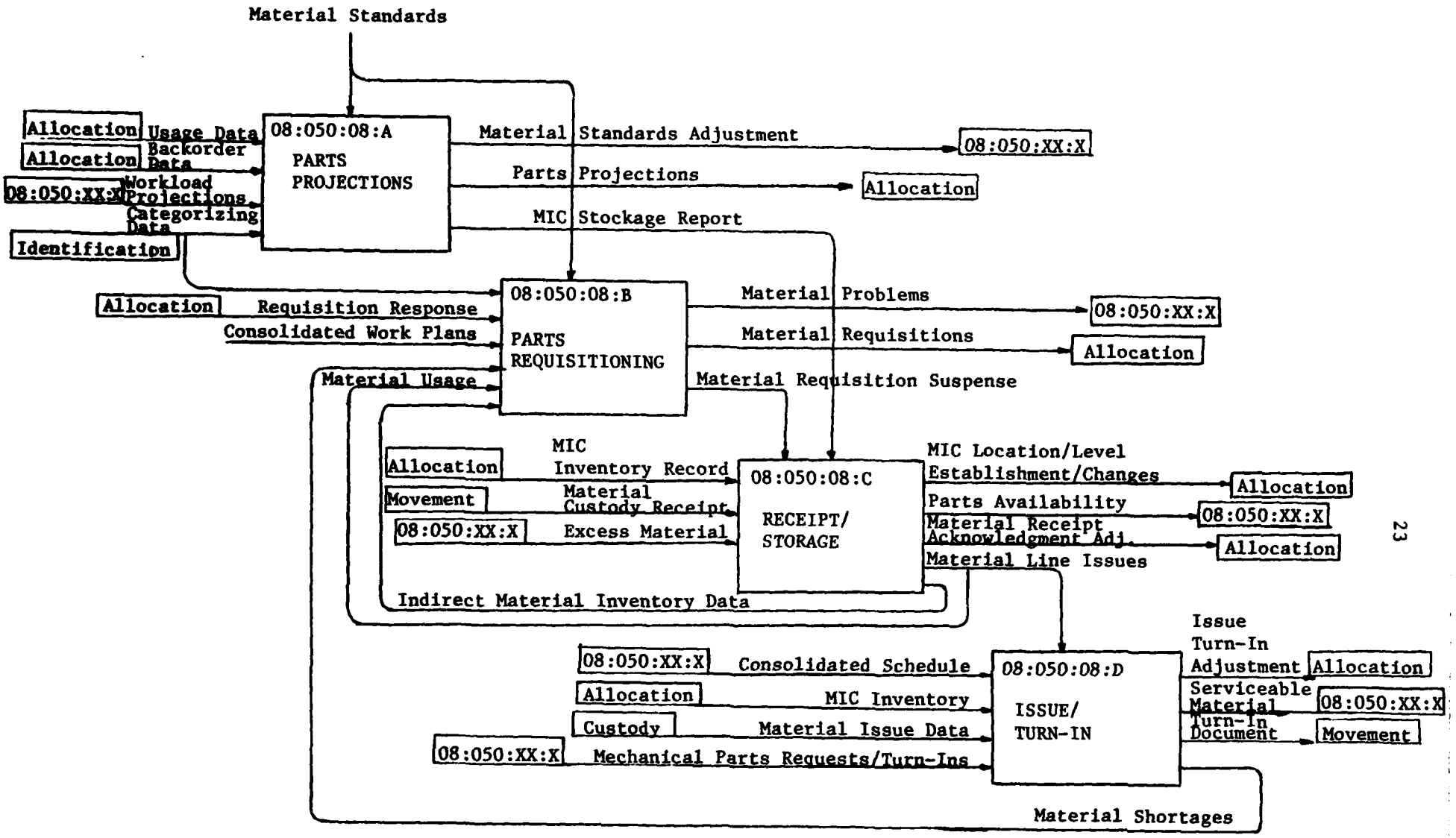

FIGURE 10. EXAMPLE OF A LAG FUNCTIONAL INTERACTION CHART

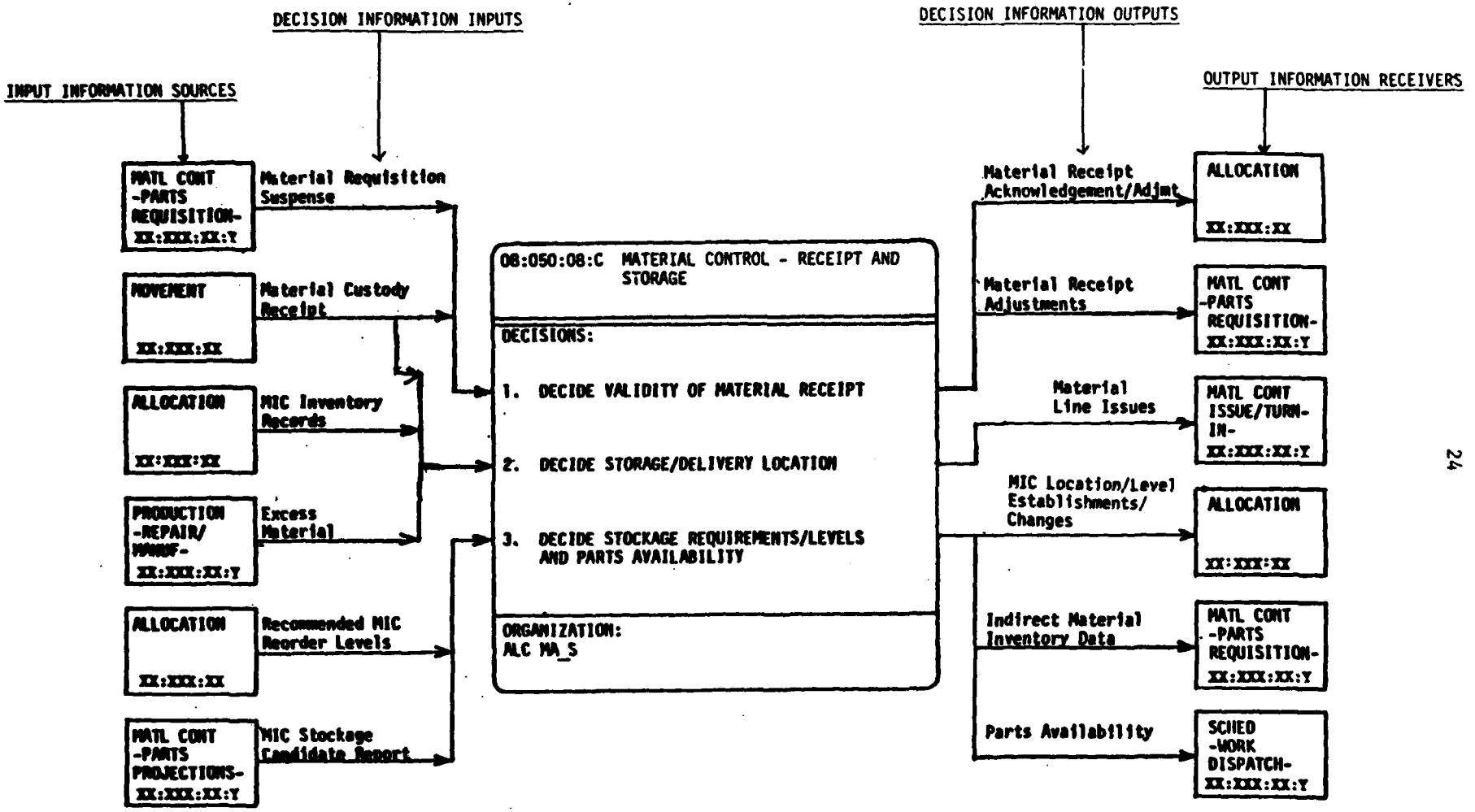

FIGURE 11. SUBFUNCTIONAL DECISIONS, INPUTS, AND OUTPUTS

the functional interaction diagram of Figure 10. The information inputs and outputs are unchanged, but are now explicitly related to each decision.

The lead LAG planner does this work, calling upon individual or joint assistance from the functional experts as required. It is important to maintain consistency between the inputs/outputs and sources/receivers here and in the previous functional flow diagrams.

It is also important to differentiate between decisions that result in logistics management actions and routine analyses that may be precursors to such decisions. Thus, "Decide on actions necessary because of parts shortage" represents the type decision sought here, as does "Decide whether shortage exists", whereas "Decide to analyze data" does not. The objective is the identification of decisions which provide focus on information needs, data timeliness, consistency, and validity that may be significantly affected by new automation or changes in automation.

At this point, sufficient information will have been developed for the identification of natural groupings of LAG functions into "logic clusters". These are defined as a set of functions that are closely interactive and would be candidates for being addressed jointly by any LMS automation approach. They can thus be viewed as constituting the initial building blocks from which LMS approach concepts will be formed. A logic cluster could cross over the Level II functional boundaries, or it may fall entirely within them. Each logic cluster is likely to consist of 2 to 5 LAG functions. It is stressed that this should not be a "forcing" activity, but rather an opportunity to start defining a robust functional structure base for LMS approach definition. Logic clusters will be grouped by a simple numbered listing identifying the LAG functions within each logic cluster, and the cluster designator will be entered as indicated in Figure 8 above.

A preliminary grouping should be identified by the lead LAG planner to be subject to review in a joint session by the functional planners for insights and comments.

Activity 3.3 Define Current Organizations Associated with LAG Functions/Decisions

The organizations that are directly responsible for the accomplishment of each subfunction are to be identified here. These will be the organizations

that have responsibility for making the key decisions indicated. Because of the level of detail of the LAG functional breakout, it is expected that in most cases one, or at most two, three- or four-letter level organizations will be identified to each function/decision combination. Identification of multiple organizations for a single function/decision may indicate a need to re-evaluate the functional breakdown used.

The perspective recorded here identifies potential organizational implications in subsequent Level III planning activities and should be developed by the lead LAG planner with assistance from the support team as required.

Decision C.1 Decide Adequacy of Description of LAG

The LAG description as developed above will be reviewed jointly by the lead LAG planner and the functional area reviewer for accuracy and adequacy from a functional definition perspective. The XRB analyst and XRB Division Chief are responsible for reviewing the product in terms of adequacy of documentation and conformance to FCMS data requirements.

As has previously been stated, there are three primary uses for the Block 1 output information:

1. It is used as source reference for subsequent Level III block activities
2. It is entered into the AFLC Functional Configuration Management Control (FCMS) for LMS Requirements Determination Planning
3. It forms the basis for paragraph 5 of the RSC that is formally produced in Block 8.

Figure 8 shows how the data are to be recorded for input to the FCMS, while the previous discussion has indicated suitable formats for the working documentation which will be suitable for further use in the Level III process.

Once the baseline LAG description is approved from the functional area and documentation viewpoint, the lead LAG planner and XRB analyst jointly complete the FCMS input information. This is then submitted formally to the FCMS Manager for entry to the system. A consistency check will automatically occur, and an FCMS LAG printout, similar to that shown in Figure 12 will be available.

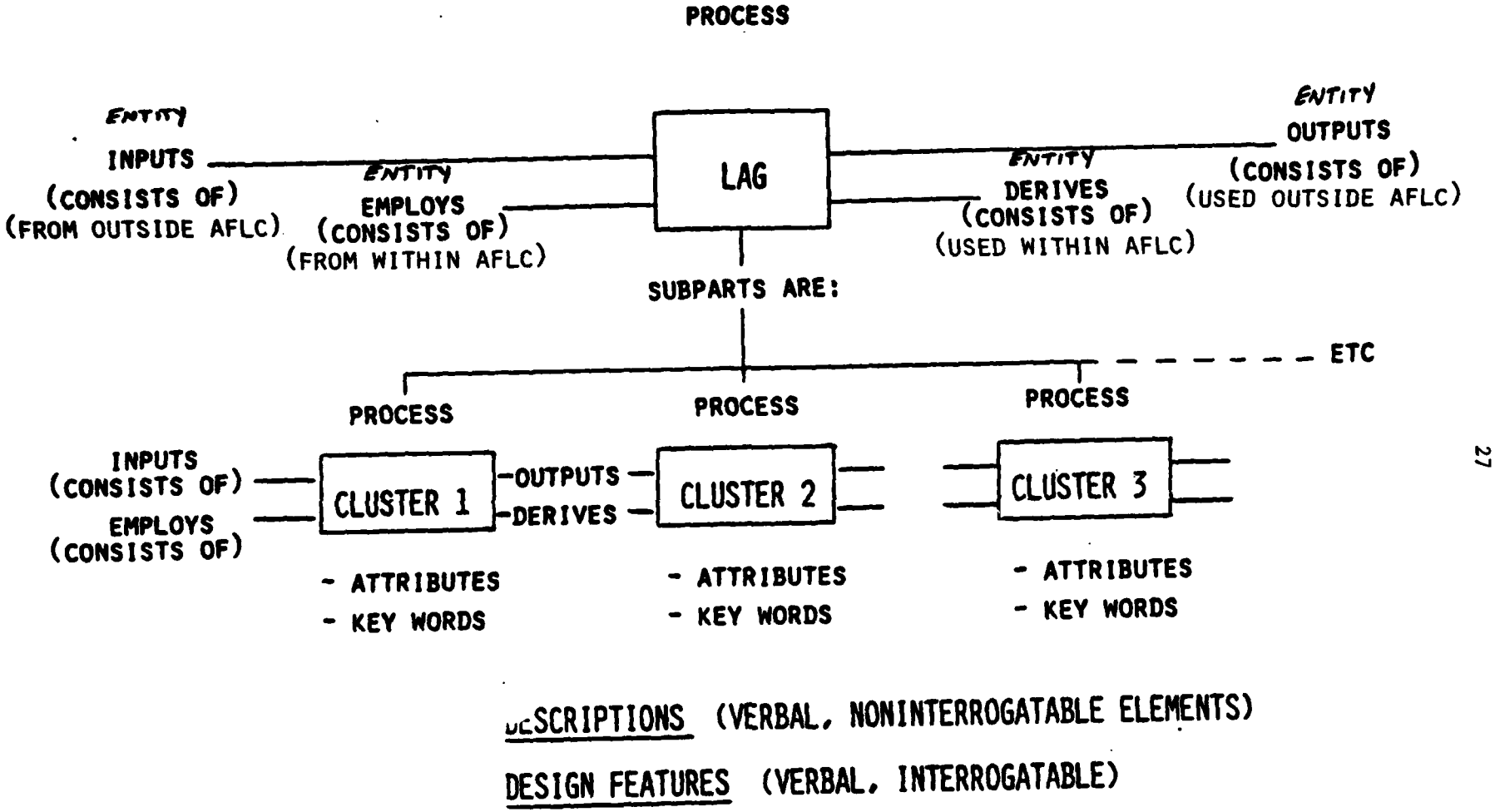

FIGURE 12. FCMS LAG DESCRIPTION FORMAT

The RSC narrative and finalization of working documents for further use are the responsibility of the functional area planning team.

Activity 3.4 Revise Descriptive Material for LAG

This activity will be undertaken as required primarily by the lead LAG planner and XRB analyst to make necessary changes as a result of the review process, including improved documentation or expansion in the underlying description of the LAG. Assistance from the LAG support team will be provided as required.

This will ensure that the documentation is complete in terms of:

- Descriptions of all functions--what their key roles are, why they are performed, and what their relationship is to the function hierarchy
- Description of all function inputs and outputs, their sources and receivers, and what their content is. Inputs and outputs need to be specified as to whether they originate within AFLC or not, or flow to the outside of AFLC or not
- Description of all decisions within the functions, including identification to the overall function inputs/outputs
- Identification of function logic clusters.

The completion of Block 1 results in the documentation of a common, integrated, and approved view of the LAG that forms a baseline view from which the rest of Level III planning proceeds as indicated on the left-hand side of the documentation flow diagram in Attachment 2.

CHAPTER III
BLOCK 2: IDENTIFICATION OF NEEDED CAPABILITIES

The purpose of the activities in this block is to identify a set of logistics management system capabilities required to meet the logistics management needs of the LAG.

This set of LMS capabilities should be oriented toward overcoming existing LMS capability shortfalls while retaining current capabilities as required, as well as capabilities that will be required in response to future trends and contingencies as defined in various DoD, USAF, and AFLC documents and guidance. The future views range out to approximately 12 to 15 years, providing perspective on the AFLC environment within which the next generation LMS will be developed, installed, and operated. Broad considerations of future posture issues are undertaken as part of the AFLC Level I planning activities. The results of these are analyzed as part of Level II planning for the parent process or perspective for each LAG. As a result, AFLC command level futurity guidance will have been translated into specific process/perspective capability requirements statements by Level II planners.

In Level III, the Block 2 futurity analyses consist of reviewing the Level II requirements specific to the functions of the LAG, and focusing these in more detail to the specific implications for each LAG function (as defined in Block 1). Current, (or existing) capability shortfalls for the LAG functional area are similarly developed from Level II descriptions of broad current capability shortfalls, by specifically reviewing those that were identified directly to the Level II functions which spawned the LAG.

Block 2 Inputs

There are four major categories in inputs to Block 2, Level III. These are:

- The futurity analysis outputs that relate to the specific LAG functions from the parent process Level II Block 2 activity

- o The list of current LAG function related shortfalls from Level II, Block 2
- o The LAG current view documentation from the Level III, Block 1 activities
- o A list of "queued" FCMS requirements from other process/ LAG planning activities that relate to the LAG.

Additionally, a set of guidance documents for background orientation is furnished to the planners to provide the necessary insight into the futurity environment that has given rise to the Level II results. At the time of writing the documents include:

- o The AFLC Command Level Guidance for Logistics Management Systems (LMS) Planning
- o The AFLC Shortfalls Document
- o The AFLC Logistics Management Systems Modernization Mission Support Documents (MSDs).

The latter are to be used as "mind setting" references to aid the LAG planners in developing a future orientation based on a set of common AFLC futurity perspectives, but may also trigger identification of additional capability requirements/shortfalls.

Block 2 Outputs

The formal output of Block 2 is a list of consolidated capability requirements derived from all sources. Figure 13 shows the generic format, while including a narrative description of the requirement, source of its identification/derivation, the LAG functions affected, indication of whether it is a current (or future shortfall), and if so, a characterization of the basic nature of the shortfall.

Block 2 Procedures

Most of the work activities in this block will be conducted in workshops involving the functional area planners, after they have reviewed the source document indicated above. The XRB analyst will provide guidance to the team on inputs, procedures, and output requirements. He may do so by carefully

CAPABILITY REQUIREMENTS

LAS Number: 30 LAS Title: _____

Parent Process: Maintenance

Description of Capability Requirement*	Source of Requirement	LAS Function Involved	Shortfall? (Current/ Future)	Nature of Shortfall			
				Inability to Capture or Provide Needed Information	Information is Captured, But Outdated or Unavailable When Needed	Inaccurate or Incomplete Information	Inefficient Means of Providing Information
1. Need capability for rapid access to material standards	Level II Function 08:050:08 Maturity Req't 1 Function 08:050:08:B Current Shortfall No. 4	08:050:08:B 08:050:XX:I 08:050:XX:V	Yes		Lack of uniform, complete, up-to-date material standards seriously hampers support of unprogrammed workloads during "conversion to war" role		Information is maintained in diverse data systems requiring time-consuming manual access and analysis for reconciliation prior to use
30. Need integrated scheduling support capability that addresses skills, facilities, equipment, and material resources vs. workload induction and sequencing alternatives	Level III Function XX:XXX:XX:V Current Shortfall No. 6	XX:XXX:XX:V XX:XXX:XX:I	Yes		The information is captured but relates to incompatible time frames and formats		Extensive manual analysis is required to produce marginally usable information . . . . .

* The examples are hypothetical.

FIGURE 13. CAPABILITY REQUIREMENTS DOCUMENTATION FORMAT

briefing of the lead LAG planner on the documents and procedures, with the lead planner then passing the information on to the team, or he may conduct a direct orientation for the participants. The XRB analyst may also be required to participate directly in the workshops, depending on the familiarity of the lead planner with the inputs and procedures.

Activity 3.5 Analyze Futurity Implications for LAG Capabilities

This activity starts with a general review of the futurity guidance documents to familiarize the Level III LAG planners with the futurity framework within which they are working. They should be briefed on the procedures and documents, and then given a day or so to review them on an individual basis prior to meeting in workshop sessions. Once the planners are familiar with this background, they should be brought together in a one- to two-day workshop where they will jointly review the Level II futurity analysis results for the process, function-by-function, identifying those that appear to have implications for logistics management capabilities for the LAG functions.

The Level II capability requirements are derived by considering the Logistics Management Capability requirements that arise for each process function in terms of the roles it fulfills when supporting the different AFLC Corporate Functions (Maintain, Conversion to War, Logistics Readiness, etc., as defined in the AFLC Command Level Guidance for LMS Planning). Figure 14 shows an example of this type of requirement breakout from a Level II functional granularity to a Level III functional granularity. The Level II information may also refer to process level requirements deriving directly from other AFLC command level guidance. These should be handled identically by identifying the LAG level implications and the affected functions.

If the planners have identified additional LAG requirements, independent of Level II output, from the review of the source documents (MSDs, or AFLC Command Shortfalls), these should also be incorporated into the documented results, along with a recording of the specific source in a fashion similar to Figure 14. The lead LAG planner ensures that the documentation is completed in a timely fashion.

LAG Number __ LAG Title _____

Parent Process _____

Level II Process Function 08:050:08 - Material Control		Level III LAG Function: 08:050:08:B - Parts Requisitioning
Corporate Function	Capability Requirement	Capability Implication
Conversion to War	1. Visibility of material availability is essential to handle very fluid/ unprogrammed workload mix	1.a. Requires capability for rapid access to material standards b. Requires rapid access to update material status information . . . . .
Sustain	X. Material supportability to mobile maintenance activities must be assessed	X.a. Requires visibility of mobile maintenance material requirements b. Requires visibility of material availability c. Requires ability to assess impact of releasing material to support mobile maintenance . . .

FIGURE 14. EXAMPLES OF LEVEL II TO LEVEL III FUTURITY IMPLICATIONS ASSESSMENT

Activity 3.6 Define Current Capabilities and Shortfalls for the LAG

This activity is directed toward identifying and recording the currently known capability shortfalls of existing LMSs that support the LAG Logistics management functions, decisions, and information flows.

The planners will be furnished with the Level II Current Shortfall documentation relating to the LAG functional domain for individual review prior to convening a one- to two-day team workshop to translate these into the current LAG functional view.

Using the functional, decision, and information definition of the LAG from Block 1, the planners will use their joint functional area expertise to relate the Level II current shortfalls to the LAG functions, interaction, and decisions, and thus identify the related current LMS capability shortfall. An example is shown in Figure 15. These may range from a major LMS capability deficiency (e.g., inability to provide timely parts status information) to needs for improvements in accuracy, frequency, accessability, or compatibility of information needed in LAG functions. Trivial shortfalls that can in principle be corrected with minor changes in I/O format, data records, etc., should be avoided. The planners' joint discretion is the best guide to the proper cut-off level.

An additional source of LAG capability shortfalls is the set of "queued" FCMS requirements, which represent capability shortfalls in the ability to support other LAGs. These are backed by official agreement (MOAs) and need to be addressed in the Level III effort as firm requirements. These are identified by the FCMS staff, and the XRB analyst will obtain the necessary documentation for this effort. They will be reviewed and related to the LAG functional and decisional picture by the planning team similarly to the Level II shortfalls, and documented similar to Figure 15 with reference to the appropriate FCMS control code for the MOA.

Finally, it should be stressed that any current LMS capabilities shortfalls identified and agreed upon by the planners beyond those covered by the Level II or queued requirements information should be documented, and identified as to nature, impact, and from where it derives. These will be

CURRENT LMS CAPABILITY SHORTFALLS ASSESSMENT

LAG Number __ LAG Title _____

Parent Process _____

Level II Process Function Scheduling	Level III LAG Subfunction Requirements/Capability Assessment
1. Lack of accessibility of required data (diverse sources)	1.a. Data transfer between MA and MM is untimely and there is unacceptable delay in the results of decisions made through personal contacts and telephone conversations. b. Workload requirements and shop capability data are in several data systems and must be extracted and manipulated manually for comparison of requirements to capability.
2. . . .	2.a. . . .

FIGURE 15. EXAMPLES OF CURRENT LMS CAPABILITY SHORTFALLS ASSESSMENT

reconciled through FCMS as updated requirements either for immediate update of Level II capabilities shortfalls, or for the next iteration of Level II for the process. At any rate, they will be carried forward as valid Level III requirements.

Activity 3.7 Identify LAG Capabilities Requirements That can be Satisfied Currently and Those That Cannot

This activity is principally a consolidation and final documentation activity carried out by the lead LAG planner. The future capabilities requirements, current capabilities, and shortfalls should be consolidated into a comprehensive, non-redundant listing of required capabilities and shortfalls for the LAG Logistics Management functions as seen for the next decade.

It is possible that some of the capability implications resulting from the futurity analysis can be satisfied within the scope of current LMS capabilities or without substantive changes. Similarly, capabilities requirements identified against future needs may correspond directly to existing capabilities shortfalls, thus allowing consolidation of the requirements.

Capabilities requirements resulting from the Block 2, Level III activity should be sufficiently comprehensive to cover the needs of the LAG functions for LMS capability, thus ensuring that LMS approaches defined later in the RDPP address not only shortfalls, but also include identification of existing LMS capabilities that must continue to be provided in the LAG area. The discretion of the planners, particularly the lead LAG planner, should dictate the extent to which the latter need to be specifically identified.

The recommended format for the output is shown in Figure 13 as discussed earlier. Each shortfall will be identified in terms of broad LMS deficiency categories as shown in Figure 13, these being:

a. There is lack of capability to capture or provide needed information

b. The information is captured or provided, but is outdated or is not available/accessible on a timely basis for decision-making

c. Information is not sufficiently accurate or complete for reliable decision-making

d. Existing capability is provided in an inefficient manner, thereby wasting manpower and other resources.

Requirements for new or changed information interfaces in other LAGs/processes will be identified, documented, and carried forward in the planning documentation, to be the subject of formal negotiations with the affected areas later in the Level III planning process. These will lay the basis for "queued" requirements for other LAGs/processes.

Decision C.2 Decide Acceptability of Capability and Shortfall Descriptions

The required capabilities that have been identified and the description of the shortfalls associated with these requirements should be reviewed by the lead LAG planner along with the LAG reviewer for functional acceptability, completeness, and consistency.

The XRB analyst and XRB Division Chief are responsible for reviewing and approving the Block 2 documentation in terms of acceptability for FCMS and other planning integration and tracking needs.

The XRB analyst provides the FCMS manager with the required data inputs (Figure 13), and initiates necessary actions to reconcile any outstanding interface issues with the Level II results, or other planning activities.

The lead LAG planner will also use the Block 2 information to develop the information needed for Paragraph 6 of the RSC, which is the definition of needed LMS capabilities for the LAG.

Activity 3.8 Revise the Capabilities and Shortfall Descriptions

Any required changes to the Block 2 capability requirements definition resulting from the review and approval process will be completed. The XRB analyst and lead LAG planner will jointly ensure that these are accomplished, and modify or expand the planning documentation to reflect these.

At the conclusion of Block 2, the Level III planning process has identified a comprehensive current functional view of the LAG, as well as defined a set of future oriented logistics management related capability shortfalls/requirements that need to be satisfied for the LAG. As previously indicated, these must correlate to and be responsive to Level II capability/shortfall

definitions, and be properly identified as to the source of derivation and LAG functional involvement.

CHAPTER IV
BLOCK 3: RECOGNITION OF POLICIES, PRINCIPLES, AND DOCTRINE

The purpose of this block is to ensure that proper account is taken of guidance and constraints imposed by policies and principles that apply to the logistics domain of the LAG. These may have considerable influence on the definition and ultimate selection of the LMS approaches finally chosen to meet the LAG capability objectives defined in Block 4.

Policies in particular may be critical, as they frequently have legal implications. Principles and doctrine are helpful as they delineate standards of good practice and operating guidelines that may be of value to the planners in approach evaluation. For example, the principle of maximum practical use of existing systems suggests that approaches consider the modification or enhancement of existing systems. In the absence of this principle, there is a natural tendency to address each requirement as a completely new one, with an attendant totally new approach.

Certain approaches may require changes in policies that guide operations. These must be identified and ultimately implemented as part of that overall approach if it is selected. This block of activities is thus important, although in terms of formal actions or time requirements it will be brief.

Block 3 Inputs

Key inputs to the block will be the results of the corresponding Level II policy and principles guidance analysis. These will be in the form of a list of policy, principle, and doctrinal guidance callouts that relate to the LAG functional area.

Block 3 Outputs

The output from this block is a list with source references containing those elements of policy, doctrine, and principles guidance that are considered

significant in terms of guidance or constraints for this LAG.

An example could be a current policy that prohibits work induction for repair unless material and labor standards are available. To legally accept such work, some policy provision must be made in order for LMS capability to schedule, project, or support such work generations within policy guidelines.

Block 3 Procedures

The recommended procedures to accomplish the activities are geared to taking advantage of the collective knowledge of the functional area planners regarding these areas.

The XRB analyst provides the functional area planners with the Level II policy/doctrine/principles analyses for their orientation and review. Each individually produces a list of implications of these for the LAG functional activities. The lead LAG planner consolidates the team's responses into a single reference list, which identifies policy, principle or doctrinal implications that are significant to the LAG functions.

Activity 3.9 Identify Policies that Guide LAG Operations

This activity focuses on the identification of specific policies that pertain to the functional area of the LAG. These will include public law, DoD policies, AFLC policies, and well-established customs.

In addition to the Level II inputs to be scrutinized, the policy knowledge of the functional area planners should be used to identify policy implications that direct the operation and control of logistics operations within the LAG domain. An example is the need for material and labor standards to be available prior to inducting items into repair.

Activity 3.10 Identify Management Science Principles that Relate to LAG Operation

Management science principles, such as span of control and clear definition of management boundaries should be highlighted in the context of potential implications for evaluation of alternative LMS approach candidates. Level II inputs and functional area expertise will be the sources of the information.

The objective of this step is to ensure that the principles are visible and understood so that they can be effectively applied in subsequent steps.

Activity 3.11 Identify Logistics Doctrine that Affects LAG Operations

Logistics doctrine guidance is passed to the LAG planning effort via Level II interpretations from Activity 1.2 in AFLC Corporate Level Planning (Level I). The specific doctrinal concerns relevant to the LAG should be extracted and made visible and known. Awareness of doctrinal issues on the part of the functional or planning methodology experts is also to be used as a resource for this purpose.

Activity 3.12 Identify Fiscal Control Principles that Relate to LAG Operations

Similar to the other activities in this block, this activity primarily consists of identifying and interpreting guidance regarding fiscal control that is directly of significance in the management of LAG operations.

CHAPTER V
BLOCK 4: FORMULATION OF CHANGE OBJECTIVES AND IDENTIFICATION OF ALTERNATIVE APPROACHES

The purpose of Block 4 is to define a set of alternative LMS-oriented approaches to meet the capability requirements of the LAG in the logistics operations and management arena. The approaches can be classified into two basic categories:

1. Modification or enhancement of current systems by adding new hardware or software modules, changing hardware or software modules, different procedures, enhancing interfaces, etc.
2. Development of new systems to replace part or all of the existing LMS supporting the LAG, defining them in terms of general system capabilities concept and broad hardware/software features envisioned, implementation concept, general interface implications to other LMSs, etc.

These approaches will be designed to satisfy a set of change objectives that are formulated at the start of Block 4 from the Block 2 capability requirements. A recommended overall LMS approach will then be selected from amongst these in Block 6 using approach evaluation criteria from Block 5.

It should be noted, that the activities of Block 4 require a change in perspective on part of the planners, by moving away from the function-by-function orientation of Block 1 and Block 2 to an objectives and approach orientation that may span over several or all of the LAG functions.

Block 4 Inputs

The inputs to Block 4 are the lists of capability requirements and shortfalls defined in Block 2; the policy and related perspective recordings from Block 3; the LAG functional, decision, and organization definitions from Block 1, and the list of process change objectives from Level II.

Block 4 Outputs

The two key outputs are the LAG change objectives and the alternative approaches. Figure 16 and Figure 17 show examples of these respectively along

CHANGE OBJECTIVES

LAG Number: __ LAG Title: _____

Parent Process: _____

Change Objective Description	Required Capabilities/Shortfalls Covered
I. Provide time-compatible information reflecting workload requirements, asset availability and source, and all aspects of production capability (skills, materials, facilities/equipment) to permit establishment and monitoring of workload schedules.	08:050)09:A:1 (Minimize manual effort in submission and follow-up of reparable asset requisition) 08:050:09:C:3 (Inability to effectively workload maintenance shops on daily basis, meet planned schedules, and satisfy priority requirements) 08:050:10:A:2 (Minimize manual effort required to obtain usable skills management information) . . . . .
II. Provide immediate visibility of material data (inventory, availability, part number/stock number cross reference, interchangeability/ substantiability), time-compatible interaction with the supply system, and minimize manual effort required to submit and track material transactions.	08:050:08:A:1 08:050:08:A:2 08:050:08:A:5 08:050:10:C:3 . . . . .

FIGURE 16. CHANGE OBJECTIVES EXAMPLE LISTING

LAG Number: __ LAG Title: _____

Parent Process: _____

Description of Approach*	Objectives Addressed	Degree of Approach Impact on Objective
APPROACH A: Develop an enhancement to DOXX system by replacing the XXX module with a new hardware/software subsystem. This will provide a direct access interface to the DOXXZ system for an on-line acquisition of material status information, and provide timely assets status information to the schedules. A supplementary minic mputer-based simulation system with access to the DOXZ and DOXY data bases will be developed to provide the scheduler with "what if" evaluation compatibility.....	08:050-I 08:050-II 08:050-IV 08:050-VI	++ + +++ + ...
APPROACH B: Develop a new, modular, distributed LMS system for the entire LAG functional area. Four interacting subsystems will be developed to address the XX, XY, XZ, and ZZ functional areas separately. The XX module will provide data base management production monitoring, report generation, and simulation support to the scheduler in an interactive mode.....	08:050-I 08:050-II 08:050-III . . 08:050-X	++ +++ ++ . . +

* The examples are hypothetical and not complete. They are intended to provide the flavour of the type and level of detail of information required.

FIGURE 17. *SAMPLE APPROACH DEFINITIONS*

with supporting information needed for tracing and consistency.

In addition, the change objectives formed in this block should be directly usable for the objectives section (Paragraph 2) of the RSC. Similarly, the description of alternative approaches should be used to form Paragraph 7 of the RSC.

Block 4 Procedures

The activities in Block 4 are crucial to the Level III planning process since it is here that the foundation for the recommended LMS approach is laid. It requires the planners to develop perspectives that may be different from their personally preferred solution in order to provide a robust case for the eventual recommendation of an approach. This is not to imply that the recommended approach may still not be that currently preferred by some or all of the planners, indeed it is likely to have major features of concepts that the planners already have formed in their day-to-day workings in the LAG functional area. The requirement in Block 4, however, is to think freely enough to define at least two to four alternative approaches that provide a basis for comparison, and selection of an alternative which can be readily supported as a result of a comparative evaluation.

The lead LAG planner must play a strong role in order to ensure that the change objectives represent a sufficiently comprehensive set of capability goals for the LAG to meet both existing and future needs. He must also ensure that the alternative approaches, whether they represent modifications or totally new designs are, in appropriate combination, able to satisfy the change objectives in a viable, effective manner.

The XRB analyst will, as part of his responsibility for the integrity of the planning procedures, ensure that: 1) Alternative approaches are generated, and 2) that they formally consider more than the "current favorite" approach of the LAG functional area planners or management.

Activity 3.13 Establish Change Objectives for the LAG

The list of shortfalls and capability requirements will be analyzed for the purposes of consolidating them into a smaller set of change objectives

for the current LAG LM/LMS support capability.

There are likely to be numerous shortfall and requirements addressing different levels and aspects of capability requirements. The consolidation assists in relating these and collecting them into a cohesive set of change objectives, taking advantage of common or complementary characteristics. It serves the purpose of combining a potentially large set of shortfalls (20 to 50) into a smaller set of objectives (4 to 10) which are easier to address in a consistent, comprehensive manner by the planners, and at a more appropriate and uniform level, when formulating approaches. It is stressed that the change objective formulation should not be artificially enforced and some shortfalls/requirements may be valid change objectives as they stand without being included in a grouping. It should also be noted that it is possible that certain shortfalls will be seen to be of low overall importance compared to others. This may particularly be true if a large number of shortfalls was identified initially. These should be documented for record but need not be included for further consideration in the Level III effort.

The classification of shortfalls and requirements into four major types in Block 2 (see Figure 13) may suggest natural patterns whereby two, three, or more will be found to aggregate into a single change objective.

Similarly, the LAG functional logic clusters identified in Block 1 may provide a structure around which change objectives can be formed. Figure 18 shows an example of a change objective formed from a set of shortfalls and requirements.

The lead LAG planner will initially review the Block 2 shortfalls and requirements lists, as well as the Level II parent process change objectives. From this he will formulate a set of strawman lists similar to that of Figure 18. He will then pass these on to the LAG planning support team members for their review, changes, and comments. The whole team will then meet in a half- to one-day workshop to finalize the change objective definitions and boundaries. They should then analyze the change objectives for consistency, and comprehensiveness versus the overall LAG functional requirements, and conduct an analysis of potential further aggregation due to other types of interrelationships. These may include:

- Dominance relationships, with certain objectives of such a nature that if they are met, certain other objectives are also implicitly met

LAG Number: __ LAG Title: _____

Parent Process: _____

OBJECTIVE 2. Provide time-compatible information reflecting workload requirements, asset availability and source, and all aspects of capability (skills, materials, facilities/equipment) to permit establishment and monitoring of workload projections and schedules with a minimal amount of manual effort.

SHORTFALLS/REQUIREMENTS:

a. Minimize the manual effort required in the submission and follow-up of of reparable asset requisitions. (Subfunction 08:050:09:A)

b. Provide maintenance schedulers with current total workload requirements (including priorities and asset availability) and current shop resource status/capability for their respective shops. (Subfunction 08:050:09:C)

c. Minimize the manual effort required to effectively workload maintenance shops on a day-to-day basis, meet planned schedules, and satisfy priority requirements. (Subfunction 08:050:09:C)

d. Provide production foreman/supervisors with the complete, current, time-compatible information required for them to make informed low-risk decisions on skills projections and daily skills management, and allow them to effectively evaluate their usage of the shops' labor force. (Subfunction 08:050:10:A)

e. Minimize the manual effort required to obtain usable information for skills management. (Subfunction 08:050:10:A)

f. Provide time-compatible work projections/schedules and facility projects/equipment acquisition data to production foreman/supervisors in a media that allows them to rapidly determine future overages/shortages of facilities and/or equipment. (Subfunction 08:050:10:B)

g. Provide time-compatible information to the scheduler that reflects total workloads for his shop and current availability and source of the reparable items required to effectively satisfy work schedules. (Subfunction 08:050:09:B)

h. Minimize manual effort required in assessing workload requirements/capability and reconciling asset status records. (Subfunction 08:050:09:B)

i. Provide time-compatible information to the scheduler that reflects the current workload and capability data. (Subfunction 08:050:09:A)

FIGURE 18. A SAMPLE CHANGE OBJECTIVE AND UNDERLYING SHORTFALLS/REQUIREMENTS

- o Precedence relationships, indicating objectives that must be achieved before certain other objectives can be addressed.

One method of accomplishing the former attempts to form the objectives into an "objectives tree" similar to that shown in Figure 19. Such a structuring may require a few iterations before satisfactory results are achieved, and it must be stressed that objectives should not be forced into a relationship. The structuring is not an object in itself, but an aid to the continuation of the planning effort in terms of approach formulation and evaluation.

Precedence relationships can be similarly shown by a charting technique such as shown in Figure 20. Again it is stressed that these are not intended to force all objectives into structures, since some may be quite independent from others and should thus be retained as "stand alone".

An additional constraint on the LAG Level III objectives is that they should broadly relate to the Level II process/perspective objectives to ensure consistency with the Level II results.

It is also necessary to maintain a record of the correspondence between the Level III shortfalls and requirements, and the Level III change objectives for entry into FCMS, as indicated earlier in Figure 16.

Decision C.3 Decide Acceptability of Change Objectives for LAG

Once the change objectives have been formulated, they should be formally reviewed by the functional area LAG planning reviewer for acceptability and comprehensiveness. This should address whether the objectives are meaningful to LMS requirements, relate to Level II process objectives, and whether they reflect realistic and reasonable goals for the functional area. The XRB analyst and the lead LAG planner will provide support to this review as required.

Activity 3.14 Revise LAG Change Objectives

Changes that result from the review are formally accomplished under this activity. They are accomplished primarily by the lead LAG planner with assistance from the XRB analyst and the functional area support team. Resolu-

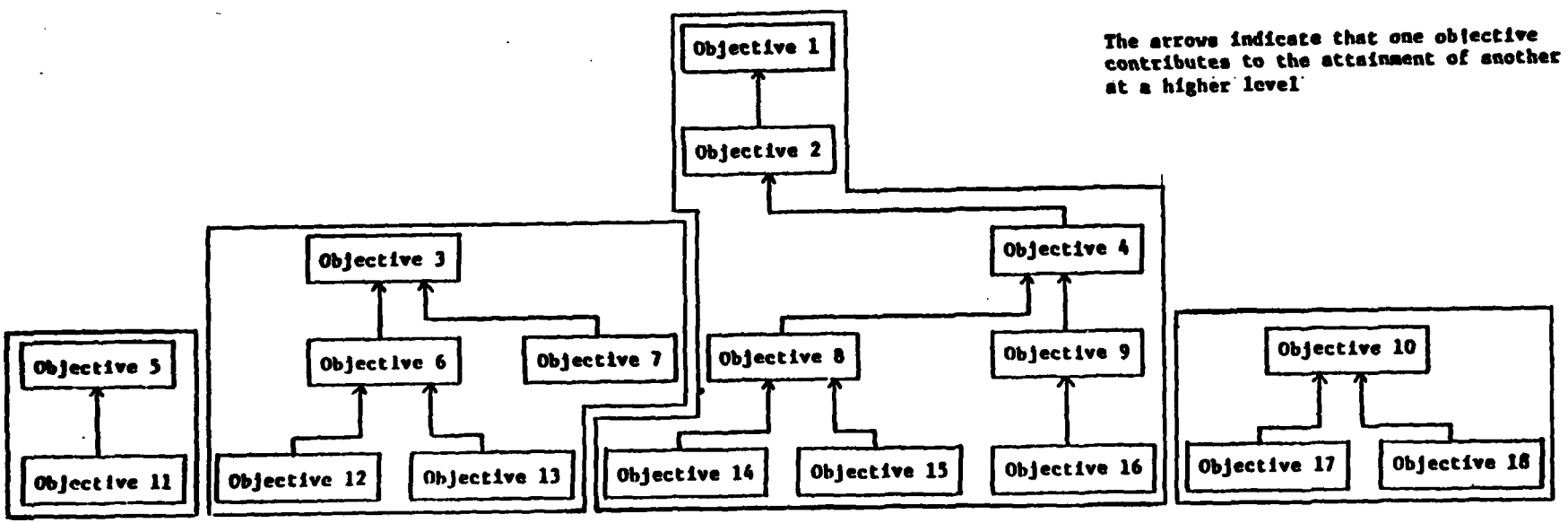

FIGURE 19. GENERIC OBJECTIVES TREE

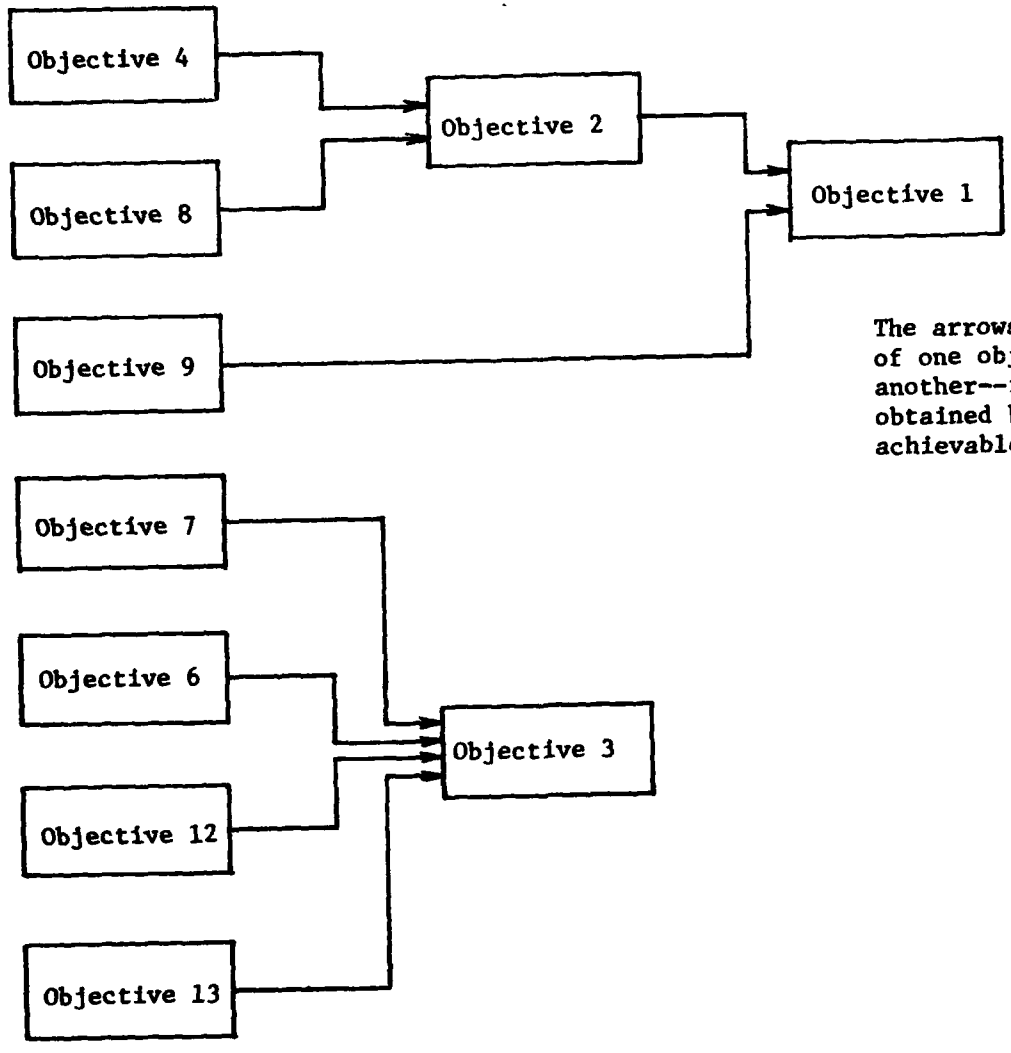

FIGURE 20. A GENERIC OBJECTIVES PRECEDENCE CHART

tion of conflicts between Level III and Level II objectives may require a joint revision of objectives that need to be formally accounted for via FCMS update.

Activity 3.15 Develop Alternative Approaches to Accomplish LAG Objectives

This activity is directed at reviewing the change objectives, their categorization and structure, and identifying approaches for meeting them either fully or partially. In the broadest sense, approaches may fall into different categories, including:

a. Organizational changes
b. Management directives
c. Policy revisions
d. LMS applications.

It is obvious that approaches may fall into more than one such category. Any objectives whose approaches fall expressly into categories (a), (b), or (c) should not be brought further as part of LMS planning, but should be documented for attention of the proper channels for any recommended action.

Objectives with approaches that have LMS applications will be carried on through the process. LMS-related objectives may have only LMS approaches; may have alternative approaches of which some, but not all, involve LMS; or may reflect an LMS impact due to management, organizational, or policy change.

Specific system capability requirement features should be identified generically to the extent possible, and two basically alternative implementation methods should be considered for each perspective as mentioned before. These are:

1. Modify current systems by adding new features, processing facilities, procedures, etc., to existing LMS(s).
2. Develop a new system defining to the extent possible the general concept, features, and capabilities envisioned.

The Block 1 functional, decision, and information flow definition of the LAG will be used as a working reference in the approach formulation. The logic clusters will be used to identify potential LMS modules, classify the type of support needed, identify the information needed and produced, decisions supported, etc. In formulating LMS approaches to meet LAG objectives, it is help-

ful to bear in mind that the system support needs may be broken into several categories, one or more of which may be required in each case. Examples of such categories include:

a. Data Gathering (e.g., maintenance actions, accounting records, status reports, requisition)

b. Fact Retrieval (e.g., sorting and reporting direct information contents)

c. Report Generation (e.g., information analysis, formatting, selective listings, summary reports)

d. Planning (e.g., analytical modeling, simulation capability, forecasting, trend analysis, "what if" capability)

e. Decision Making (allocation of resources, stock control, distribution of assets)

f. Design Support (parametric estimating, engineering)

g. Business Functions (payroll, billing, personnel records, program funds, cost reporting).

Approaches may be formulated in a variety of ways to meet change objectives. Alternatives may address different levels of an objectives tree cluster for example, ranging from the entire objective set, to isolated objectives. The extent of coverage depends on the extent of new LMS development or existing LMS modification envisioned. It is not possible to state in general what the right levels of focus should be for a particular LAG. The knowledge and insight of the planners, combined with the nature of the requirements and the state of the art combine to make each LAG a special case in this respect.

It is obvious that the definition of a final set of alternative approaches to the LAG change objectives may involve a considerable range depending on the perspectives of the planners, the amount of available information and prior analysis, political considerations, etc. It may thus be necessary to go through more than one iteration of the approach formulation activity before satisfactory results are achieved.

A primary requirement is that the final set of approaches collectively address all the LAG objectives.

The approaches formulation must take place in a structured workshop environment with participation by all the functional area LAG planners. These may span over several days, and it may be found advantageous to adjourn periodically and assign individual planners to clarifying, expanding, and documenting

a particular approach. The need for continuity of effort requires full commitment of all the planners for the duration which should nominally be a week or so.

The approaches will be documented as to their characteristics and their coverage of objectives in a form similar to that of Figure 17 above.

Activity 3.16 Identify Policy Changes Required for Each Approach

It is possible that some LMS approaches defined in Activity 3.15 may require changes in organizational policies, with implications beyond the authority of the functional planning organization to resolve. If the policy change implications are such that they are critical to the functional practicality of an approach, these need to be identified explicitly so that it is clear to all evaluators that the policy change is an integral characteristic of the approach definition. This will also lay a foundation for assessment of feasibility, the channels necessary to be addressed for resolution, etc.

CHAPTER VI
BLOCK 5: DEVELOPMENT OF EVALUATION FRAMEWORK AND CRITERIA

The purpose of Block 5 is to develop a framework for evaluation of the alternative LMS approaches developed in Block 4. Part of this framework consists of criteria for prioritizing the development of the LMSs selected for meeting the LAG change objectives.

Block 5 Inputs

The inputs to Block 5 include the generic approach evaluation criteria shown in Figure 21, and the generic LMS development prioritization criteria shown in Figure 22. These are intended to provide a starting point for definition of specific LAG-relevant criteria by each planning team, and should not be viewed as exhaustive or inviolate. The purpose is to assist the planners in tuning their thinking to the types and range of criteria that are appropriate to the type of evaluation they will be conducting in Block 6.

Additional inputs are the LAG change objectives from Block 4, which form an important basis for making the criteria LAG-specific, and the most current synopsis of AFLCs ADP/T network capability, capacity, and implementation schedules.

Block 5 Outputs

The outputs from the block are similar to Figure 21 and Figure 22, revised to incorporate LAG specific/relevant criteria defined by the planners.

Block 5 Procedures

The lead LAG planner will provide the planning support team members with copies of the generic approach evaluation criteria, the LAG change objectives list, and ADP/T plans.

Each planner will review the generic criteria, evaluate its relevance and meaning in terms of the knowledge each has of the LMS approaches and the

APPROACH EVALUATION MATRIX

LAG Number ___ LAG Title _____

Parent Process _____

Evaluation Criteria	Scores/Assessments: Approach 1	Approach 2	. . . .	Notes/Comments/Clarifications
I. POTENTIAL BENEFITS:				
o Achievement of Objectives	.	.	.	
- Objective 1	.	.	.	
- Objective 2	.	.	.	
:				
o Improvement in support of AFLC corporate functions	.	.	.	
- Equip	.	.	.	
- Maintain	.	.		
- Logistics Readiness	.	.		
- Conversion to War	.	.		
:				
o Adaptability to Changed Requirements				
II. OPERATING COST/RESOURCE REQUIREMENTS:				
o Operating Personnel Required				
o Operating Skills Required				
o Direct Operating Costs				
o Maintenance/Support Costs				
III. INTERFACE IMPACTS:				
o Impacts on Existing Systems				
o Impacts on Planned Systems				
o Compatibility with Existing Organizations				
o Compatibility with Other LAGs/Processes				
o Impacts on Function and Decision Structure				

FIGURE 21. GENERIC APPROACH EVALUATION CRITERIA MATRIX

Evaluation Criteria	Approach 1	Approach 2	. . . .	Notes/Comments/Clarifications
IV. COMMUNICATIONS SYSTEMS AND ADP IMPLICATIONS: o Conformance to AFLC ADP/T Plans - In Local Network (ALC) Environment - In Long Haul (Inter-ALC) Environment - Schedule/Capability/Capacity Conformance V. DEVELOPMENT REQUIREMENTS: o Personnel Required to Develop o Funds Required to Develop o Applicability of Commercial Software o Time to Develop o Time to Implement/Deploy VI. RISKS: o Schedule Risk o Technical Development Risk o Operational Performance Risk o Financial Risk o Organizational Risk VII. POLICY/MANAGEMENT IMPLICATIONS o Compatibility with Existing Policy o Level of Endorsement Required				

FIGURE 21. (Continued)

LAG Number: ____ LAG Title: _____

Parent Process: _____

LMS Development Priority Criteria	Scores/Assessments: Alternative A	Alternative B	. . . . .	Comments/ Qualifications
A. Satisfaction of LAG Objectives				
o Timely achievement of needs				
o Early achievement of most critical needs				
B. Likelihood of Achieving Objectives				
C. Development Risk				
o Chance of delay				
o Chance of failure				
D. Consequence of Failure to Develop				
o Effect on Command				
o Effect on other efforts				
E. Compatibility with Command Resources Available				
o Funding				
o Personnel/Skills				
o ADP/T capabilities				
F. Flexibility of Program				
o Varied funding levels				
o New requirements				
G. Manageability				
o Command experience				
o State of the art				

FIGURE 22. GENERIC LMS PRIORITIZATION EVALUATION FRAMEWORK

LAG functions in general. Each will write down alternative criteria that are considered more appropriate in this particular case, and a brief interpretation of what each criterion means to that individual.

The lead LAG planner then consolidates these into a unified, consistent set of criteria for LAG LMS approach evaluation, along with a single set of interpretations. A brief review with the planners will be required to ensure all are in agreement, and understand and accept the frameworks which they will be using in Blocks 6 and 8.

Activity 3.17 Develop Evaluation Framework and Criteria to Evaluate Alternative Approaches for LAG

Most of the information available to evaluate the pros and cons of the alternative approaches for Level III LMS planning will be qualitative in nature. The recommended evaluation framework is therefore oriented toward a subjective comparison, within a matrix format, assessing each approach against a set of common criteria in several general categories. Figure 21 shows suggested criteria and a generic form of the matrix. The LAG planners will review these, interpret their meaning in the context at hand, and/or identify more appropriate criteria for this LAG. The criteria should be defined in such a way that the highest score represents the most beneficial implication for each criterion, and the lowest score represents the least beneficial/most disadvantageous implication for each criterion. In this manner, high cost will be scored low, low impact on existing systems will be scored high, etc.

A variety of scoring schemes can be specified, largely depending on the preference and perceptions of the planners. This can include explicit numerical scores (e.g., from 0 through 5); positive and negative numerical scores (-3, . . +3), or a set of pluses and minuses (+++, . . . ---). The pros and cons of each scoring scheme are largely based on the use or abuse that can be made of the results. The possible use of summing and weighting of categories for resolution of conflict or perceived inconsistencies is discussed in Block 6, Activity 3.25

It is recommended that the LAG change objectives included be limited to the set of highest level objectives in the objectives hierarchy of Block 4. This limits the number of criteria while attainment of lower objectives can be reflected in the scores assigned (bearing the objectives tree in mind).

Activity 3.18 Develop Criteria to Prioritize LMS Development for the LAG

Once a basic LMS approach concept is selected in terms of overall system capability and general features to satisfy the LAG change objectives, the next level of decision will be how to go about achieving the concept in terms of development effort, implementation method, funding, personnel, and other resource requirement profiles, etc. Alternatives are potentially large including, for example, prototyping followed by full development and deployment; incremental (modular) development and deployment; turn-key development by contractors; and others. The alternatives may be numerous. A framework for assessing the pros and cons of reasonable development and deployment schemes that are appropriate to the needs and realities of each LAG effort is required in order to develop a rational implementation plan.

The criteria developed here will be used to evaluate alternative LMS development concepts to implement the selected approach. They will be applied later in the process (in Block 8) to provide a basis for selection of an implementation approach. Many of the same criteria for evaluation will again be appropriate, but now in the context of time phasing, resource allocation, and likelihood of meeting objectives, and in more quantitative terms.

Approaches will vary in terms of the feasible implementation schemes, so the scope of criteria and ultimate range of choices will vary from LAG to LAG. However, LMS development prioritization will have to consider tradeoffs between such factors as:

- Resource (funding and manpower) constraints
- Phasing with other LMS efforts if interdependent
- Phasing with evolution of AFLC ADP/T capability
- Criticality of achieving LAG objectives.

An assessment framework similar to that shown in Figure 22 should be developed for each alternative LMS implementation scheme to provide a basis for an evaluation and selection in terms of a set of common criteria. It is emphasized that some of the scoring will be based on a very preliminary understanding of exact costs and resources. However, consideration of these factors in a framework of common evaluation criteria will provide a good basis for functional area experts to reach a sound conclusion.

CHAPTER VII
BLOCK 6: APPROACH EVALUATION

The purpose of Block 6 is to conduct an evaluation of the alternative LMS approaches that were identified for the LAG in Block 4. This will be accomplished by using the evaluation framework defined in Block 5, and by conducting quantitative and qualitative assessments of the approaches against the criteria. While it is desirable to conduct the evaluation on an analytical basis, it is likely that subjective assessments will have to be used for many criteria.

As stated in the discussion of Block 5, the objective of this analysis is to enable the planners to assign some form of quantitative rating for each alternative as measured against each given criterion. The quantification scale used by the planners can take several forms to suit the needs of the particular LAG, and the background and perceptions of the planners. Scales of 0 through 9, positive and negative scales, a scheme of pluses (+) and minuses (-), can all be used equally well. It is useful to bear in mind, however, that too large a range of values may impede the analysis. A range of 5 to 7 assignable values is generally satisfactory (e.g., ± 3, ± 2, ± 1, 0).

One requirement holds for the quantification scheme, however. This is that a high positive rating should consistently reflect a highly beneficial implication (e.g., low risk; low cost; or high benefit), and a low (or highly negative) rating should indicate an adverse implication.

Block 6 Inputs

The inputs to Block 6 are the current view definition for the LAG from Block 1; the alternative approaches, their associated change objectives, and the policy impact definitions from Block 4; and the LAG specific LMS approach evaluation criteria matrix from Block 5 (Figure 21). Additionally, the planners will be provided with copies of the current AFLC ADP/T Plan and information on current and planned LMSs in areas that interact with the LAG at hand. Block 3 policy and doctrine analyses should also be provided for appropriate consideration of their overall influence.

Block 6 Outputs

The primary output from Block 6 is the completed LMS approach evaluation matrix with the final criteria scoring and appropriate backup notes or comments for each candidate approach in the column provided or in attachments if necessary (Figure 21).

This also provides the central feature required for Paragraph 8 of the RSC (Comparison of Alternatives).

Working documentation will be in the form of notes and lists to capture the rationale underlying the ratings, and should be recorded for record in the form of workshop minutes.

Block 6 Procedures

The overall procedure involves an analysis of different categories of measurement in the different activities, via a review, discussion, and analyses of the implications and impacts of the different LMS approaches in each area affecting the approach.

This will take place in a workshop involving the lead LAG planner, XRB analyst, and the LAG planning support team. The process of analysis and evaluation will require dedicated involvement of the group over a period of one to two weeks. The process will probably be iterative, as focus is clarified and relative weights of implications start to appear.

Activity 3.19 Develop Cost/Resource Estimates of Operating Under Each Approach

Each proposed approach will be analyzed to establish estimates of relative operating cost and resource requirements. Actual numbers are desirable even if only in orders of magnitude; otherwise, relative ratings will have to be used (e.g., high, very high, low, etc.). These will be used for scoring criteria on a relative basis for each approach under Category II (Operating Cost/Resource Requirements) in the evaluation matrix (Figure 21).

Activity 3.20 Identify Potential Benefits of Each Approach

The purpose of this activity is to provide a basis for scoring against the criteria in Category I of the evaluation matrix (Figure 21). This includes evaluating how well each approach meets the highest level set of change objectives addressed by the approach (as identified in Block 4). The assessment thus requires a review of the extent to which each approach addresses each change objectives (i.e., all, one fully, some subset thereof, etc.), and assessing the relative benefit of the approach against each objective.

Similarly, the planners will conduct a review of the origin and nature of the change objectives and assess the potential benefits of each approach in terms of improvements to the ability of the LAG to support the AFLC Corporate Level Functions (Equip, Maintain, Conversion to War, etc.) with each approach.

Other benefit measures that have been identified specifically for the LAG as part of Block 5, will similarly be reviewed and assessments made of each approach. The scores for the relative benefit ratings are entered in the evaluation matrix as they are developed.

Activity 3.21 Identify Organizational, Functional, and Decision Impact of Each Approach

This involves a qualitative assessment of the operational implications of each approach in terms of impact or organizational boundaries, functions, and decisions. The current view of the LAG (from Block 1) should be reviewed, and the adverse or positive implications of each alternative identified against LAG functions, decisions, and associated information flows.

It should be stressed that the goal is to provide a perspective of these implications in the relative assessment of approaches rather than a rigorous or absolute evaluation against every criterion. The assessments made here will be used to develop scores against the appropriate criteria in Category III (Interface Impacts) in the evaluation matrix (see Figure 21).

Activity 3.22 Identify Systems Interfaced With or Affected by Each Approach

This activity addresses the need for developing an assessment of the LMS impact of each approach in terms of current and planned LMSs. The Block 1 view of the LAG, the functional expertise of the planners, and a review of existing LMS development plans provide the information required.

Positive or adverse LMS impacts will be indicated by scoring each approach against the appropriate criteria in Category III in Figure 21 (Interface Impacts).

Activity 3.23 Identify Communications/ Data Processing Implications of Each Approach

This activity addresses the compatibility of the different LMS approach alternatives to the existing and planned ADP/T communications environment. It is intended to cast light, in a relative sense, on the degree to which each approach fits into existing or planned facilities in the operational ALC/HQ AFLC environment.

The scoring will be against Category IV in Figure 21 (Communications Systems & ADP Implications) and should account for compatibility with ADP/T capability implementation plans both in terms of performance requirements and anticipated timing of such capabilities. Thus, an approach that envisions the need for a fully supported, AFLC-wide distributed system before the ADP/T plan provides such a capability should be scored low. Similarly, an approach that requires a set of potentially costly special design interfaces to the standard ADP/T network should be scored low in this category.

Activity 3.24 Identify Resources Required to Implement Each Approach

This activity is aimed at providing a basis for assessing and scoring each alternative in terms of criteria in Category V (Development Requirements) of the evaluation matrix (Figure 21). This includes relative assessment of development

personnel and funding requirements, development time, time to full implementation, degrees of usability of off-the-shelf software, and any additional criteria that may have been identified as appropriate for this category in Block 5.

Activity 3.25 Execute Evaluation of Alternative Approaches

Most of the initial scoring of approaches will have been accomplished in the preceding activities of this block. However, an assessment of risks associated with the alternatives (Category VI) remains to be made. Scoring of the alternatives against the risk criteria should thus be done in this activity. Additionally, scoring against Category VII (Policy/Management Implications) should be completed, using the policy impact information developed in Block 4.

This activity then proceeds to review the scores in the evaluation matrix and ensures that the evaluation information is in a form that is conducive to selecting an approach or a set of approaches to meet the LAG change objectives.

After the evaluation matrix has been completed the first time, it is possible that additional iterations may be necessary to consider various alternatives.

The first step of the process should be to add up the scores for each approach directly. This overall score may yield results that the planners do not find acceptable or supportable. The reason for such a result is likely to be the equal weight implicitly given each criteria category (i.e., Potential Benefits weight equal to Risks, etc.). This is usually not realistic since some criteria are of greater importance than others in a particular situation.

There are at least two methods by which adjustments can be made in the evaluation matrix to reflect more correct "utility" assessments. One method is to give weights to each category of criteria (or even to each criterion, if preferred) and compute weighted scores for the approaches by multiplying each score by the criteria category (individual or criteria) weight and adding the resulting scores for each approach. Two or three such exercises will usually suffice to yield results that reflect the planners' "utility" perspective.

Another method to capture the "utility" perspective is to explicitly adjust the criteria scores for each approach in a process that implicitly "weights" the scores by deciding, for example, that a score of +5 for schedule risk for an approach really should be a +3 when viewed against a score of +5 for achievement of Objective 1. While this method avoids explicit assignment of weights to criteria (to which some have aversion), it is likely to be more tedious for anything more than a small number (less than 10) of entries and more difficult to supply rationale for the results. The former method of explicit weighting is thus recommended for use.

The final results of the evaluation development should be documented in the matrix. Supporting rationale for assignment of scores and weights, interpretation and qualification of results, etc. should be supplied or referred to in the Notes/Comments column.

The stage is now set for a formal, documented selection of a recommended LMS approach to satisfy the LMS related change objectives of this LAG.

CHAPTER VIII
BLOCK 7: CONFIGURATION CONTROL PROCEDURES

The purpose of this block is to ensure that the information developed during the LMS Requirements Determination Planning Process for the LAG is internally and externally consistent; maintains compatibility with other Level III, Level II, and Level I Process/Lag planning information; and preserves an audit trail and the rationale for the selected approach.

The information supporting the LAG LMS planning effort will be entered in the Functional Configuration Management System (FCMS). It will constitute a framework to which the ensuring LMS design must conform, thus ensuring that the eventual system implementation is fully in alignment with the results of the LMS RDPP effort.

The FCMS has three basic objectives. The first is to control the interface between the modules (LAGs) which constitute the framework around which the management systems are being designed. The second is to record the command basis for justification for allocation of resources for LMS improvements. The third objective is to document the rationale for designing systems in a particular way.

To accomplish the first objective it is necessary that the functional description of AFLC, or the LAGs, be part of the FCMS data base. Interactions between LAGs can be tracked to ensure that data transfers are considered in system design and that all AFLC functions are included in some LAG.

To accomplish the second objective it is necessary that the rationale for first selecting an area to be improved and, second, selecting specific improvements, be traceable to some command objectives or benefit so that the allocation of resources in these areas can be justified.

To support the third objective, which is related to the second, it is necessary to document some of the logic which led to the decision to incorporate particular design features in the management system. This documentation then provides a baseline for evaluating proposed changes to that design.

Block 7 Inputs

The inputs to this block consist of the planning documentation that is generated in all the Level III activities for the LAG, as well as a copy of the Functional Configuration Management System (FCMS) Operating Instructions (O.I.), and the Configuration Management Criteria/Performance Standards developed as part of the Level II activities to control Level III LMS requirements definitions and stored in FCMS.

Block 7 Outputs

The outputs are the set of documentation called for in the FCMS O.I. required to define most of the elements of the LAG Objective Function. This function has ten separate information categories that will be stored in FCMS to meet the three objectives of planning configuration control. A brief overview of the elements of the LAG Objective Function is provided below. The are:

1. Functions Performed. Portions of the AFLC functions which are to be serviced by this management system. This definition of the module boundaries is necessary to ensure a common understanding of the scope of the area being serviced. The aggregation of all these modules must cover all the AFLC functions. This element serves objective number one of FCMS, the interface control requirement. It is also necessary to ensure the comprehensiveness of the requirements determination activities.

2. Support Applications. The purpose of this element is related to all three objectives of the FCMS. Relating the functions described to the services and the hardware classes supported provides part of the basis for allocating resources, and also indicates the source of some of the required design features. In addition, it indicates organizational interface requirements.

3. Major Constraint. The purpose of this element is to document the rationale for selecting a particular design feature or features. If a feature was selected on the basis of an existing policy, or anticipated changes,

it may be necessary to reassess that feature if that assumption proves unnecessary. In some cases, this constraint will be readily identifiable, while in other cases the underlying causes for selection may be quite obscure.

4. Major Dependency. The purpose of this element is to identify key interfaces with other functions or systems. Although the modules are designed to be relatively freestanding, they all have some external interfaces, some of which may be key drivers. Within a system there may be subsystems, or within a function there may be logic clusters which have a significant sequential requirement which dictates certain system design parameters.

5. Major Attributes. This data element describes information characteristics and content. Such information as information sources, scope, level of aggregation, time horizon, currency, required accuracy, and frequency of use would be considered as characteristics, while quantitative or narrative forms would be described as content.

6. Major Input/Output. The functional description will recognize flows between LAGs and within LAGs. This element will describe the nature of the input from other systems and the output requirements. It should include information regarding frequency, form, and communications requirements.

7. Percent Automated. The extent to which the management functions of the LAG are automated in terms of information support, decision making, report generation, etc. is reflected in this overall measure.

8. Design Features. The element may be in the form of functional or physical specifications rather than final design solutions, since those result from activities which take place after the RSC and DAR processes. This specification will be related to the particular objectives the system is required to achieve, or specific requirements which arise from interface with other systems or within the system.

9. Measures of Merit. The element is related to the current command exercise designed to identify indicators of achievement of command objectives. Where possible, some of the data collection and analyses should be related to those indicators.

10. Estimated Dollar Investment Acted Upon. This element is related to the justification for allocation of command resources. It will be related to element number two, the support applications, but will not be readily discernible in all cases. Several systems will affect all of AFLC, for example.

As indicated in the Document Flow in Attachment 2, the Level III LMS planning for the LAG will provide information for formulation of all the elements of the LAG Objective Function except elements 7, 9, and 10 (as indicated by checkmarks). These will be entered from other, parallel efforts (Measures of Merit) or as part of the ensuing LMS design and development activity which FCMS will continue to track.

Block 7 Procedures

The XRB analyst and lead LAG planner work in cooperation with the FCMS manager and his staff to provide the required information. The FCMS staff are responsible for the actual data entry. If conflicts with other Process/LAG information or plans arise as part of this effort, they will be resolved either by joint agreement between the affected functional areas at the Division Chief Level, or is elevated to the DCS level by the XRB Management Team if necessary.

Activity 3.32 Implement Configuration Control Procedures for LMS Design Using FCMS

This activity will ensure that all the necessary documentation required to enter the planning information into the FCMS is available. Any deficiencies in documentation will be remedied at this point by the planners in order to ensure capture of the rationale, interrelationships, and narrative support descriptions while these are still fresh in their minds.

The documentation will be translated by FCMS personnel into FCMS syntax and into the PSL/PSA. The information will then be checked for consistency and completeness, and, once approved, will become part of the LMS Requirements Determination Planning information repository.

CHAPTER IX
BLOCK 8: SELECTION OF AN APPROACH AND DEVELOPMENT OF A PLAN FOR LMS DESIGN

The purpose of this block is to select an LMS approach to meet the LAG change objectives. The selected approach will be documented in a formal AFLC standard Required System Capability (RSC) document (AFLC 400-5) that will be subjected to review and approval via normal channels. Following RSC approval, the development of a plan for actual implementation of the LMS approach concludes the Block 8 activities.

Block 8 Inputs

The inputs are the completed evaluation matrix and supporting rationale from Block 6, as well as the LMS development prioritization framework and criteria developed in Block 5. A further set of inputs is the information already developed for the previously identified paragraphs of the RSC in the preceding blocks.

Block 8 Outputs

The two principal products of Block 8 are an approved RSC for the LAG and the associated LMS design and development plan. The latter should be oriented toward design and implementation considerations, such as design and development schedule, best estimates of manpower and funding requirements, etc. Figure 23 shows an example of the information to be included in such a plan.

Block 8 Procedures

Except for the validation of the RSC, which is an XRB responsibility, the activities in Block 8 are a functional area responsibility. The lead LAG planner plays the key role in developing the RSC and the plan for LMS design, supported by the LAG functional area reviewer. Additional management

SUMMARY OF PLANNED DESIGN AND DEVELOPMENT PLAN									
NARRATIVE DESCRIPTION:									
Development Criteria	Year 1 198.	Year 2 198.	Year 3 198.	. . .	Year I* 198.	Year I+1 198.	. . .	Year I+n 198.	Total Costs
COSTS									
Cost to Develop									X
Hardware	X	X	X						X
Software	X	X	X	X	X				X
Data Collection		X	X	X	X	X			X
Cost of Deployment									X
Training					X	X	X		X
Hardware				X	X	X	X		X
Software					X	X	X	X	X
Labor/Construction				X	X	X	X	X	X
Cost to Maintain									
Software					X	X	X	X	X
Hardware					X	X	X	X	X
Facilities						X	X	X	X
MANPOWER									
Systems Analysts Required	X	X	X	X	X				
Programmers	X	X	X	X	X	X	X		
Management Analysts	X	X	X						
Operators					X	X	X	X	
SCHEDULE									
LMS Concept Design	——	——							
o DAR Validated		▲							
System Development		——	——	——					
System Deployment				——	——	——	——	——	
CAPABILITIES ACHIEVED									
First ALC Operational					▲				
All ALCs Operational							▲		
AFLC-Wide Netted Capability								▲	

*Year first implemented.

FIGURE 23. GENERIC LMS DESIGN AND DEVELOPMENT PLAN

level functional area staff may be assigned as deemed appropriate in the case of each LAG, depending on the technical issues and political environment involved.

Activity 3.26 Select Approach to Accomplish LAG Change Objectives

This activity follows directly from the approach evaluation of Block 6. It involves using the information in the evaluation matrix to make a selection of one or more of the LMS approaches that in combination will satisfy the LAG change objectives. This will constitute the selected approach to be submitted in the RSC for approval.

The approach selection should be made by the functional area, either by the LAG planning reviewer, with assistance from the lead LAG planner, or, by a specially appointed independent functional area management panel that is fully briefed by the LAG planning reviewer or lead LAG planner. The key requirement is to ensure that the selection be made by individuals who have sufficient peer and upper management credibility for their selection to be broadly accepted.

The rationale for selecting the final choice should be documented as part of the selection procedures. Approximately one to two days of concentrated effort will be required for the actual selection.

Following approach selection, it is necessary to identify assumptions and requirements for new data or information from other Process/LAG management systems (automated or manual) and changes in data or information that are provided to other Processes/LAGs.

These will be jointly evaluated and negotiated with the affected functional areas, resulting in the writing of Memoranda of Understanding (MOA) covering the agreed upon interface/information capabilities. These will form the basis for entry of FCMS "queued" requirements from the LAG to be responded to by other Process/LAG LMS planning efforts. Difficulties in reaching functional area agreements will be escalated to the DCS level for resolution if necessary.

The selected approach will be identified and the rationale documented to form Paragraph 8 of the RSC. The selected approach and rationale will also be provided for entry into FCMS.

Activity 3.27 Develop RSC for LMS Needed to Support Selected Approaches

The RSC provides the formal vehicle for submitting and approving the LMS approach resulting from the Level III LAG LMS Requirements Determination Planning effort.

The actual development of the document should be substantially complete at this point since the outputs of different blocks of the Level III methodology have called for orientation of the product to the needs of the RSC. The lead LAG planner, with support from the LAG planning reviewer will develop the formal document according to the requirements of AFLC 400-5. This will contain an overview of how LMS needs are met today, what capabilities are needed, alternatives to satisfy the needs, the pros and cons of each, and a recommended approach with supporting rationale.

Decision C.4 Decide Whether to Validate the RSC

This decision is part of a formal AFLC RSC evaluation procedure conducted by HQ AFLC/XRB. Interaction with the functional area planning experts will take place during this activity to provide clarification and possible additional rationale or elaboration.

Activity 3.28 Revise RSC

This activity is indicated in the process to account for the possibility that independent review of the RSC in the approval process may surface the need to revise the document in some way. If the Level III procedures have been adhered to, major problems or the refusal to validate the RSC are not anticipated, since detailed justification and rationale will be provided. Any revisions will be coordinated between the lead LAG planner and the XRB analyst.

Activity 3.29 Initiate Appropriate Efforts to Effect Necessary Policy Changes

This activity formally addresses the requirement to ensure that any necessary policy changes required for implementation of the selected LMS approach are considered. The procedure will depend on the nature of the policy changes, their impact on other areas, and the management level needed for approval. This activity will identify the specific actions necessary for policy change approval and implementation in conjunction with the LMS development.

Activity 3.30 Prioritize LMS Development Activities Necessary to Support Selected Approach

Using the LMS development evaluation framework and criteria developed in Block 5, this activity will select a set of possible alternative LMS approaches and identify the estimated development time frames, funding requirement profiles, manpower requirements, and capability achievement goals. These factors will be correlated with alternative phasing schedules for achieving LAG change objectives, assumptions regarding ADP/T development schedules, and interfacing LMS capability development schedules for potential incompatibility or possible synergism of efforts.

This activity will be jointly carried out by the lead LAG planner: the LAG planning reviewer, the XRB analyst (for coordination with other LMS design and development schedules), and any functional area management personnel deemed appropriate.

Activity 3.31 Develop Plan For Designing LMS for LAG

The planners will rank the alternatives in terms of benefits, resource requirements, and risk, and develop a prioritized list of LMS development activities to be pursued to implement the selected LMS approach.

They will document the recommended sequence of activities, the estimated funding requirements, and other development resource requirement

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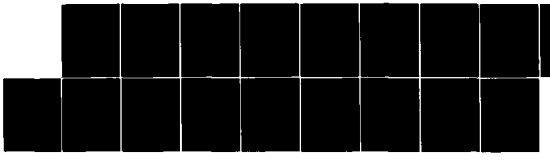

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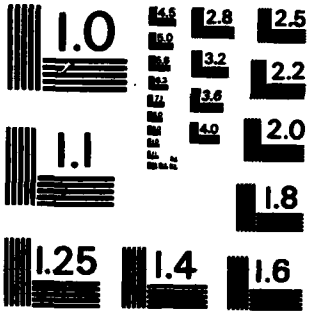

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estimates necessary to implement the LMS approach. This should not duplicate the contents of the RSC or other previous Level III products, and should be confined to implementation considerations. A generic format for documenting the plan is shown in Figure 23. The narrative should describe the design and development approach in sufficient detail to provide a basis for upper management approval and commitment to resource and time schedules for implementation.

CHAPTER X
BLOCK 9: APPROVAL OF PLAN

The purpose of this block is to ensure that the LMS development plans defined in the Level III effort are approved and supported by the management of the functional areas involved, and that the implications for resource commitments are understood and supported. It additionally provides for approval of the plan in terms of interface and coordination with other LMS design efforts.

Block 9 Inputs

The input to the block is the LMS design and development plan and the RSC developed in Block 8.

Block 9 Outputs

The output of Block 9 is the formal, approved, and supported plan for LMS development to satisfy the change objectives for the LAG.

Additionally, a conceptual DAR may be provided at the discretion of the planners.

The outputs of all the activity blocks are kept on file, and these and the information stored in FCMS for the LAG constitute a LMS planning data rationale and information repository for the ensuing LMS design and development effort.

Block 9 Procedures

These activities constitute the conclusion of the formal Level III LMS Requirements Determination Planning Process. They include the formal approval to proceed on to LMS design, and the commitment of resources to accomplish the planned design and development. The functional area again plays the major role in this approval and transition phase, but the XRB Management Team is also involved in ensuring compatability with overall AFLC LMS development plans as represented in the FCMS system.

Block 9 Procedures

Decision C.5 Decide Acceptability of LAG Planning and the Plan for LMS Design

This is a two stage approval process. First, functional area management representing the DCS level will formally review the planned effort, examine its objectives, approach, resource requirements, and functional area impacts. Approval of the plan constitutes a commitment to the plan by the functional area.

The XRB Management Team, acting as the AFLC Commander's agent will also review the LMS design plan for compatability of schedules and command resource requirements with the overall AFLC LMS development plan. Acceptance of the plan constitutes approval of the phasing implications of the LMS design and development plan.

Difficulties will be ironed out at the Division Chief level if possible, and escalated to DCS or CV level only if agreement is impossible to reach at the lower level of management.

Activity 3.33 Revise LAG Planning and/or LMS Design Plan

This activity is implemented only if revisions are called for in the original Level III planning results. These could arise because of changed directives, resource availability prospects, or other changes in the planning environment during the last phases of the Level III planning activities.

The functional area and XRB will designate staff as appropriate to accomplish the revision.

Activity 3.34 Allocate Resources to LMS Design

This activity represents the formal allocation of resources, designation of a project team, and assignment of responsibility to the designated development organization in accordance with standard AFLC/USAF/DoD procedures.

Activity 3.35 Prepare Conceptual DAR

This is an optional activity within the Level III LMS Requirements Determination Planning Process.

It may be deemed desirable or necessary by the functional area planners and decision-makers to provide more details regarding the approved LMS design concepts than are documented in an RSC. The preparation of a "conceptual" DAR is viewed as a means of conveying additional guidance to the LMS definition and development effort. Information and insights developed during the Level III planning activities would thus be preserved, and duplication of analysis or reversal of earlier decisions could be discouraged.

APPENDIX

GLOSSARY OF ABBREVIATIONS AND TERMS

GLOSSARY OF ABBREVIATIONS

ADP/T	Automated Data Processing/Telecommunications
DAR	Data Automation Requirement
DSD	Data Systems Designator
FCMS	Functional Configuration Management System
LAG	Logical Application Group
LM	Logistics Management
LMS	Logistics Management System
PSA	Problem Statement Analyzer
PSL	Problem Statement Language
RDPP	Requirements Determination Planning Process
RSC	Required System Capability

GLOSSARY OF TERMS

Accounting Process	This process records and maintains all AFLC financial records, allocates funds, tracks expenditures and costs, and prepares financial reports as required by various AFLC/AF Managers. It supports the unique financial requirements of all other processes.
Acquisition Process	This process involves the acquisition of major weapon systems for Air Force Systems Command, the acquisition of AFLC's own systems and modifications, and AFLC's procurement activities for end items, parts, and service.
ADP/T Architecture	The ADP/T architecture consists of a combination of multi-functional shared systems and functionally dedicated systems located at HQ AFLC and at each ALC. The fundamental approach of the ADP/T architecture is to use functionally dedicated computers, each performing its function, and interconnected with other functionally dedicated computers to accomplish the total logistics management function. This collection of interconnected computers will be accomplished through an integrated general purpose communications network to provide terminal-to-computer and computer-to-computer communications within and among sites.
Allocation Process	This process involves making stock control decisions based on customer order, stock movement, and optimal distribution (or redistribution) of available stocks to authorized users or dealers.
Allocation of Command Resources (Corporate Function)	This is AFLC's task of managing (budget and allocation) the internal operating resources in accordance with command responsibilities (particularly in accordance with war responsibilities). Managing rather than administering is stressed. The task centers first on accurately transforming AFLC's war operations emphasis into its equivalent in internal functional resources to assure that war considerations receive first priority. Only after this first part of the task is accomplished can other responsibilities enter the picture to strike the best balance between war capability

GLOSSARY OF TERMS (Continued)

	and other interests which must be served (e.g., economy of operations, legal requirements, etc.).
Capability	The specific LMS capacity to be used, treated, or developed to satisfy a particular requirement.
Capability Requirements	LM capabilities which are necessary for AFLC to perform either its wartime of peacetime mission, currently and in the forseeable future. As used in this document it generally refers to LMS requirements.
Capability Shortfalls	Discrepancies which exist between identified AFLC requirements and the capabilities to satisfy these requirements.
Change Objective	An objective identified and defined as a result of a comparison of AFLC requirements with AFLC capabilities, the subsequent identification of specific shortfalls which then are aggregated appropriately into objectives for change.
Corporate Functions	Seven macro-level functions universal to all of AFLC's activities. These are: o Equip o Maintain o Conversion to War o Sustain o Logistics Readiness o Allocation of Command Resources o Planning for Keeping Options Open Each is defined under its separate listing in alphabetical order.
Conceptual DAR	A basic data automation request (DAR) prepared in accordance with AFM 300-12, which lacks the specificity to gain final approval but conveys the basic concept (hence the term conceptual DAR). The document serves as the basis for approval of the intent and as the basic authorization to proceed, authorizing limited resources pending later definitization. As the project development effort continues, the DAR is expanded through a series of ammendments. A recent example of this approach is the Stock Control and Distribution System (SC&D) DAR.

GLOSSARY OF TERMS (Continued)

Conversion to War (Corporate Function)	This is AFLC's task of actually converting to a war or other contingency footing. It includes all tasks, formal or informal, to make the conversion. For example, doing all one time tasks of getting a specific tactical unit capable of deploying or a receiving site capable of reception, making all internal depot management changes to operate on a war footing.
Custody Process	This process involves the storage, periodic inspection, and retrieval of materiel.
Equip (Corporate Function)	This is AFLC's task of supporting or actually accomplishing acquisition and the introduction of weapons and equipment into the inventory. It includes capabilities acquired new purchase or modification of existing systems and equipment (Note: Modifications for cost reduction are not included).
Function	The process by which some set of inputs is transformed into some desired output. AFLC functions may include physical transformations, exchanges of materials, storage, movement, or information transformations. These functions are the basic unit of description for AFLC processes and perspectives. Groupings of functions form logic clusters and LAGs.
Functional Configuration Management System (FCMS)	A system to identify and document (utilizing PSL/PSA) the functional characteristics of a LMS, to control changes to those characteristics in terms of content and interface, and to record and report change processing and implementation. FCMS will depict what exists (the baseline at any point in time) and what is planned (anything in process, not yet implemented).
Identification Process	This process involves the cataloging and standardization actions for classifying and comparing items, and the distribution of the information to interested users. This is done in compliance with congressional mandates and DoD directives.
Improvement Process	This process involves the monitoring and analysis of product performance, control and analysis of materiel deficiencies, and Technical Order (T.O.) management and distribution.

GLOSSARY OF TERMS (Continued)

Logical Application Group (LAG)	A collection of functions that can logically be addressed as a segment of the Logistics Management System.
LAG Planning Reviewer	A functional area upper-level management person who reviews and overviews the progress of the LMS RDPP for the LAG.
LAG Planning Support Team	A group of three to five functional area subject experts that provide support to the LMS RDPP for the LAG when called upon by the Lead LAG Planner.
Lead LAG Planner	The principal functional area expert responsible for carrying out the LMS RDPP for the LAG.
Logistics Readiness (Corporate Function)	This is AFLC's task of developing and implementing, before war, methods of compensating for shortfalls in its wartime mission capabilities. The task is largely analytical and deals with all shortfalls caused by such things as new enemy capabilities, inadequate resources (budget), environmental changes (political, physical, or economic), or any other similar events.
LM Concept	The Logistics Management Concept is a portrayal of how logistics processes are to be managed. Necessary management decisions are presented in a framework relating logistics processes and management levels. It is embodied in a set of policy statements that set forth major areas of concern.
LMS	The Logistics Management System (LMS) represents the decision structure and information flows used to manage the operation of AFLC in fulfilling their mission.
LMSs	These are the individual management systems used in logistic management systems.
LMS Design	The systems analysis/design activity which focuses on the LMS (or sub-parts thereof). The LMS design is generally part of the concept development and ADPE design.

GLOSSARY OF TERMS (Continued)

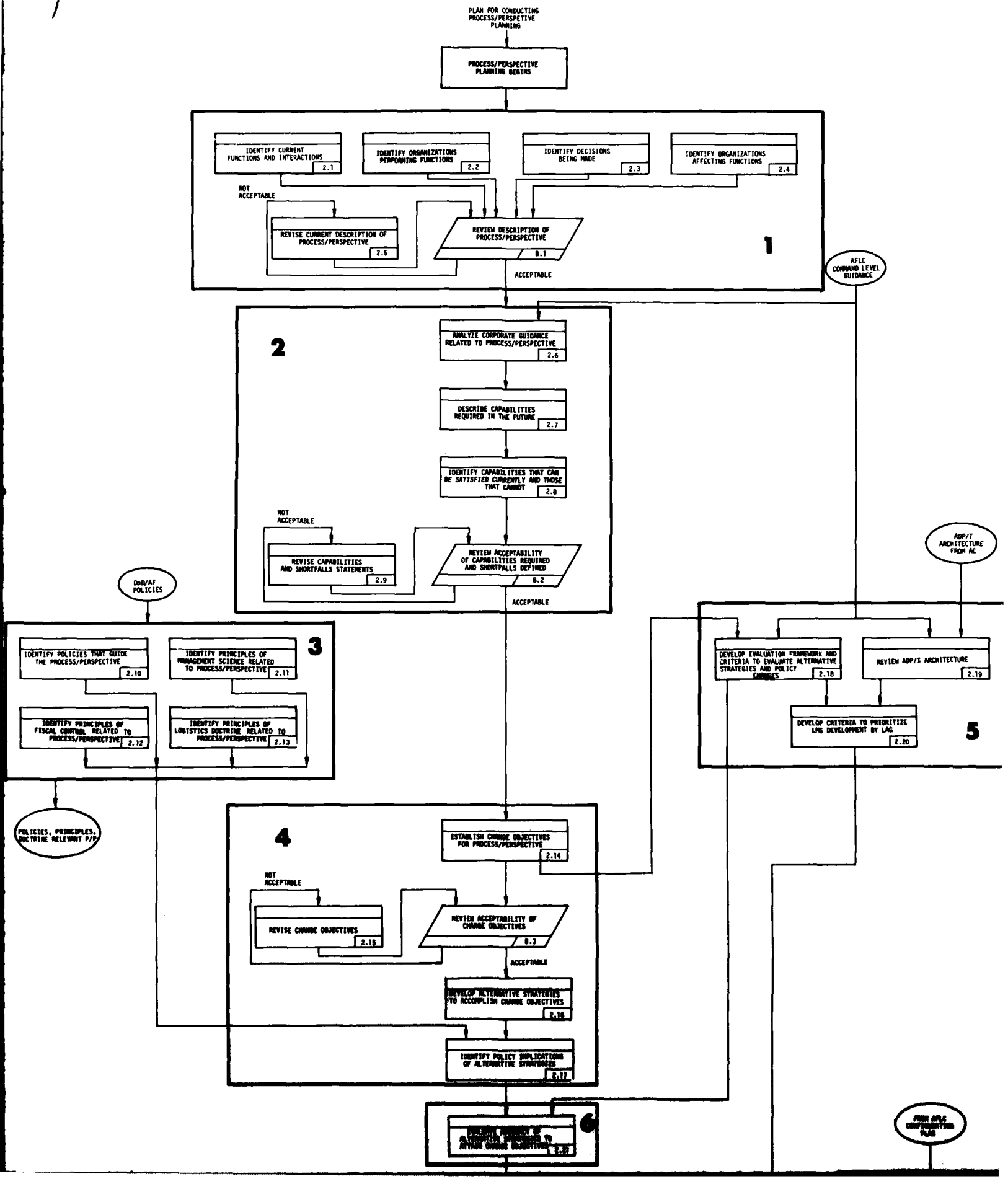
LMS Principles	Guidelines for development of Logistics Management Systems based on general practice in five areas: o Logistic functions o Logistic operations o Management Science o Information management o Fiscal control.
Logic Cluster	This represents a set of functions that interact intensely. (These clusters are "subsets" of LAGs).
Logistics Perspective	The six special viewpoints that lead to ways of structuring logistics activities: o Wartime surge o Item management o Weapon system management o Production Management Specialist o Quality assurance o Equipment specialist.
Logistic Processes	The eleven activities that fulfill the logistics mission: o Plan/Program/Budget o Acquisition o Requirements o Identification o Allocation o Custody o Movement o Improvement o Maintenance o Process Support o Accounting Each is defined under its separate listing in alphabetical order.
Maintain (Corporate Function)	This is AFLC's function of supporting the existing force structure in a peacetime mode; i.e., maintaining operational readiness.
Maintenance Process	This process involves retaining material in, or restoring it to a serviceable condition. It includes servicing, repair, modification, modernization, overhaul, rebuild, test, reclamation, inspection, and condition determination.

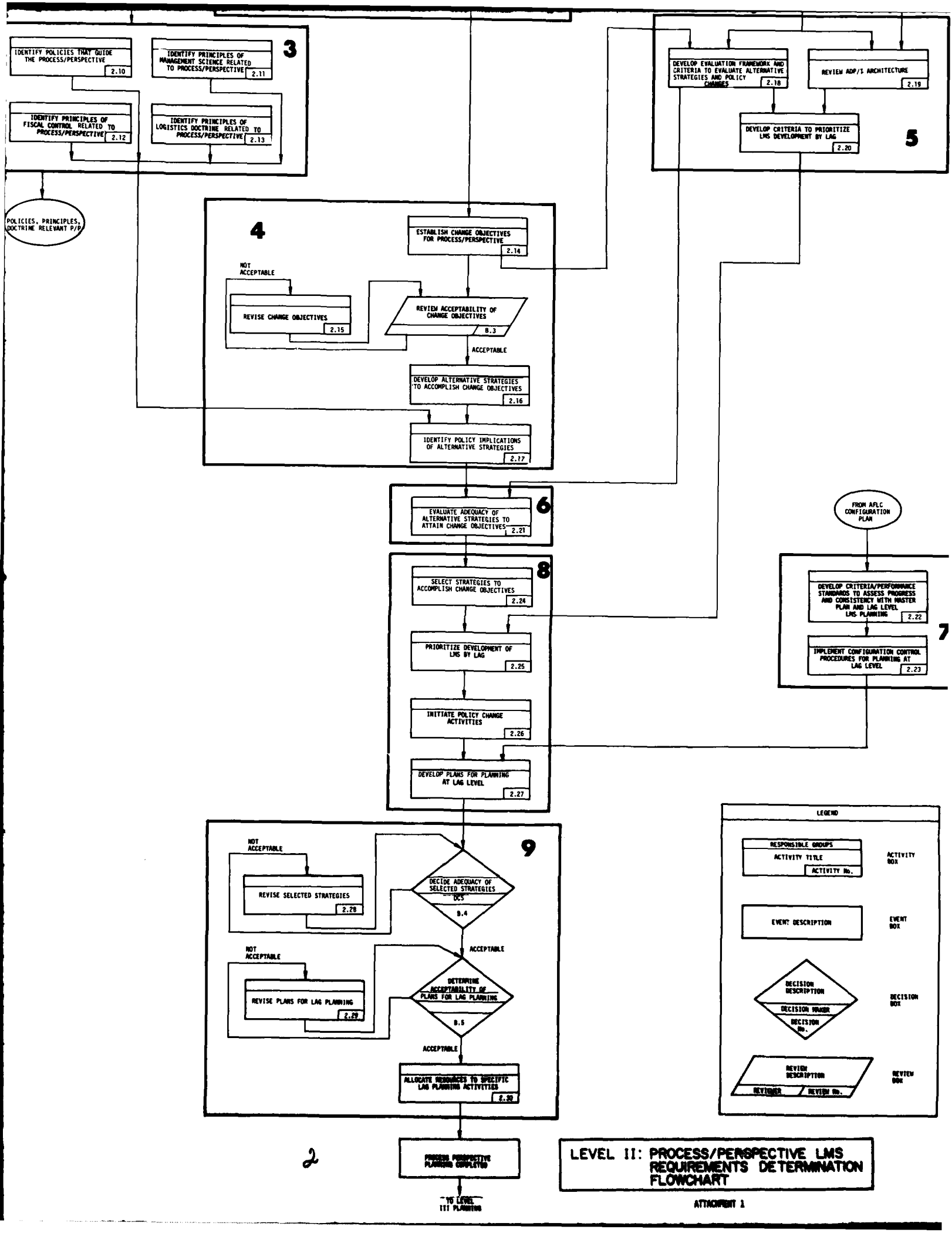
GLOSSARY OF TERMS (Continued)

Movement Process	This process involves development of plans, concepts, policies, and procedures for the worldwide movement of Air Force cargo and passengers.
Plan/Program/Budget	The process incluses the establishment of mission objectives and determination of the actions required for their achievement (plan); the translation of these plans into statements of resources (program); the extension of these needs into time phased dollar terms (budget); performance evaluation; and operational command, control and communication.
Planning for Keeping Options Open (Corporate Function)	This is AFLC's task of continuously evaluating ongoing events/decisions, including long-range planning, for their impact on logistics--specifically, assuring throughout all business activity that logistics readiness is not unknowingly compromised and that flexibilities essential for responsive operations are always retained.
Problem Statement Language/ Problem Statement Analyzer (PSL/PSA)	Software packages which will be used for configuration management of LMS planning. PSL/PSA will produce an automated representation of AFLC's LMS functions, information flows, and management characteristics so that complex interfaces may be mechanically maintained through day-to-day change.
Process Support Process	Provides logistics management capabilities oriented toward commodities or customers where integration across several processes is necessary. It includes capabilities to manage commodities such as Engines, Ammunition, Energy, and Nuclear Ordnance. It encompasses capabilities to support customers or logistics systems such as the International Logistics Program, Information for Management, Embedded Computer Systems and Logistics Management by Weapon System.
Queued Requirements	Requirements for specific interface/data support capabilities from one LAG to another. These are formally agreed upon by the functional areas involved and documented in Memoranda of Understanding (MOAs).

GLOSSARY OF TERMS (Continued)

Requirements Process	Involves computing the spares and repair parts, equipment, fuels, and depot level maintenance needs of the Air Force and other agencies; forecasting the inventory needs of Air Force materiel required to support operating forces, and collecting past materiel usage, associated force activity, and relating this information to future force activity and plans.
Required System Capability	A document that states the functional requirement for logistics management system capability. Heavy emphasis is placed on system goals, requirements, and functions, but not to the detail required in a DAR.
Sustain (Corporate Function)	This is AFLC's task of finding the necessary means to provide the "Maintain" functions under the range of adverse conditions expected in war and other contingencies. Examples are: (a) The stress of sustained usage rates beyond the normal program. (b) Establishing an alternate method of support when the primary means has been destroyed. (c) Carrying out operations under attack.
Utility	In decision-analytic applications utility is a subjective measure of liking or relative worth.
XRB Analyst	An individual designated by XRB to provide guidance to the LMS RDPP for the LAG on proceedures, data requirements, FCMS requirements, and other associated LMS RDPP activities.

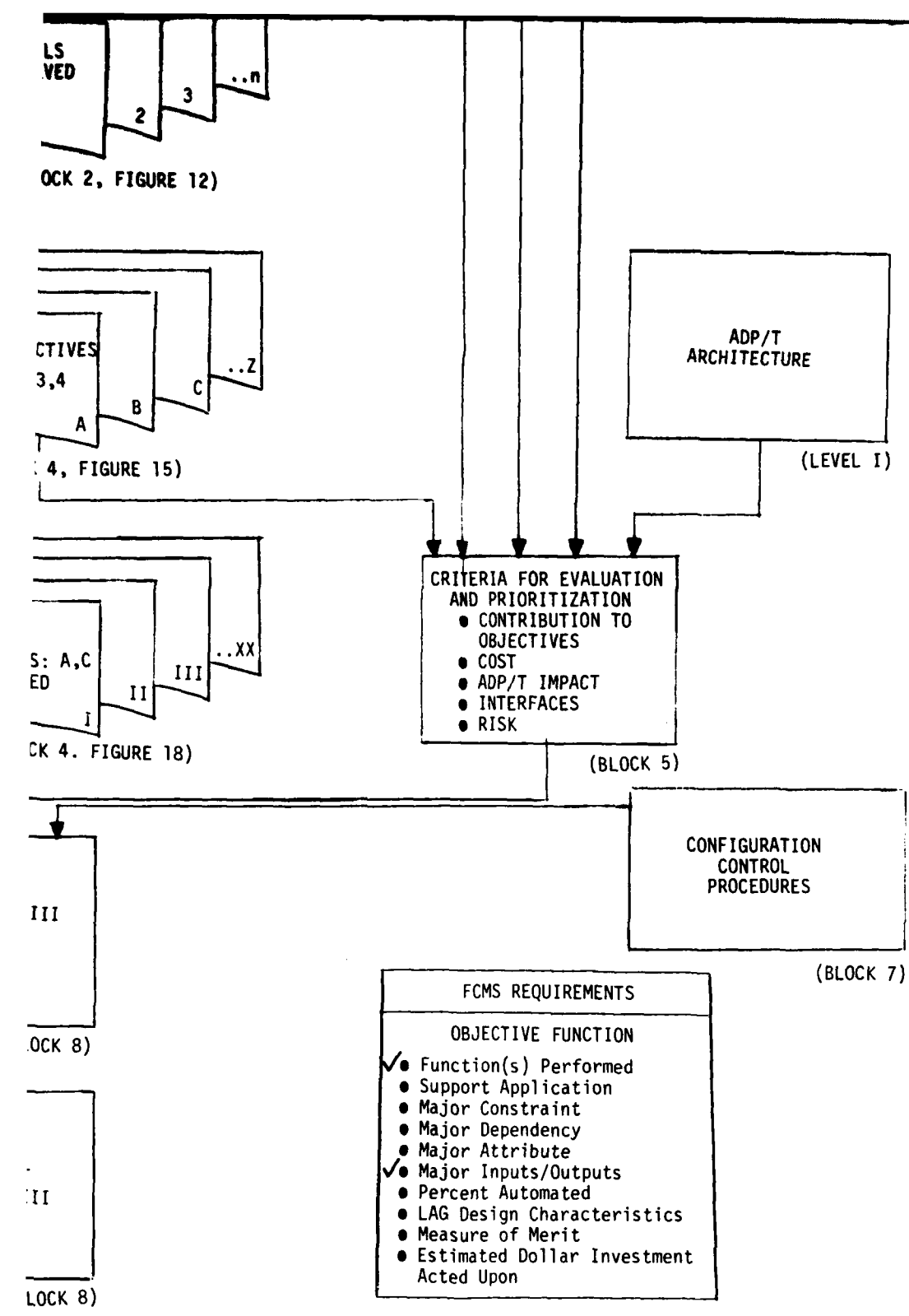

PLAN FOR CONDUCTING PROCESS/PERSPETIVE PLANNING
PROCESS/PERSPECTIVE PLANNING BEGINS
IDENTIFY CURRENT FUNCTIONS AND INTERACTIONS 2.1
IDENTIFY ORGANIZATIONS PERFORMING FUNCTIONS 2.2
IDENTIFY DECISIONS BEING MADE 2.3
IDENTIFY ORGANIZATIONS AFFECTING FUNCTIONS 2.4
NOT ACCEPTABLE
REVISE CURRENT DESCRIPTION OF PROCESS/PERSPECTIVE 2.5
REVIEW DESCRIPTION OF PROCESS/PERSPECTIVE 8.1
ACCEPTABLE
1
AFLC COMMAND LEVEL GUIDANCE
2
ANALYZE CORPORATE GUIDANCE RELATED TO PROCESS/PERSPECTIVE 2.6
DESCRIBE CAPABILITIES REQUIRED IN THE FUTURE 2.7
IDENTIFY CAPABILITIES THAT CAN BE SATISFIED CURRENTLY AND THOSE THAT CANNOT 2.8
NOT ACCEPTABLE
REVISE CAPABILITIES AND SHORTFALLS STATEMENTS 2.9
REVIEW ACCEPTABILITY OF CAPABILITIES REQUIRED AND SHORTFALLS DEFINED 8.2
ACCEPTABLE
ADP/T ARCHITECTURE FROM AC
DoD/AF POLICIES
3
IDENTIFY POLICIES THAT GUIDE THE PROCESS/PERSPECTIVE 2.10
IDENTIFY PRINCIPLES OF MANAGEMENT SCIENCE RELATED TO PROCESS/PERSPECTIVE 2.11
IDENTIFY PRINCIPLES OF FISCAL CONTROL RELATED TO PROCESS/PERSPECTIVE 2.12
IDENTIFY PRINCIPLES OF LOGISTICS DOCTRINE RELATED TO PROCESS/PERSPECTIVE 2.13
DEVELOP EVALUATION FRAMEWORK AND CRITERIA TO EVALUATE ALTERNATIVE STRATEGIES AND POLICY CHANGES 2.18
REVIEW ADP/T ARCHITECTURE 2.19
DEVELOP CRITERIA TO PRIORITIZE LRS DEVELOPMENT BY LAC 2.20
5
POLICIES, PRINCIPLES, DOCTRINE RELEVANT P/P
4
ESTABLISH CHANGE OBJECTIVES FOR PROCESS/PERSPECTIVE 2.14
NOT ACCEPTABLE
REVISE CHANGE OBJECTIVES 2.15
REVIEW ACCEPTABILITY OF CHANGE OBJECTIVES 8.3
ACCEPTABLE
DEVELOP ALTERNATIVE STRATEGIES TO ACCOMPLISH CHANGE OBJECTIVES 2.16
IDENTIFY POLICY IMPLICATIONS OF ALTERNATIVE STRATEGIES 2.17
6



2

LEVEL II: PROCESS/PERSPECTIVE LMS REQUIREMENTS DETERMINATION FLOWCHART

ATTACHMENT 1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OCK 2, FIGURE 12)
CTIVES
3,4
A
B
C
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4, FIGURE 15)
ADP/T
ARCHITECTURE
(LEVEL I)
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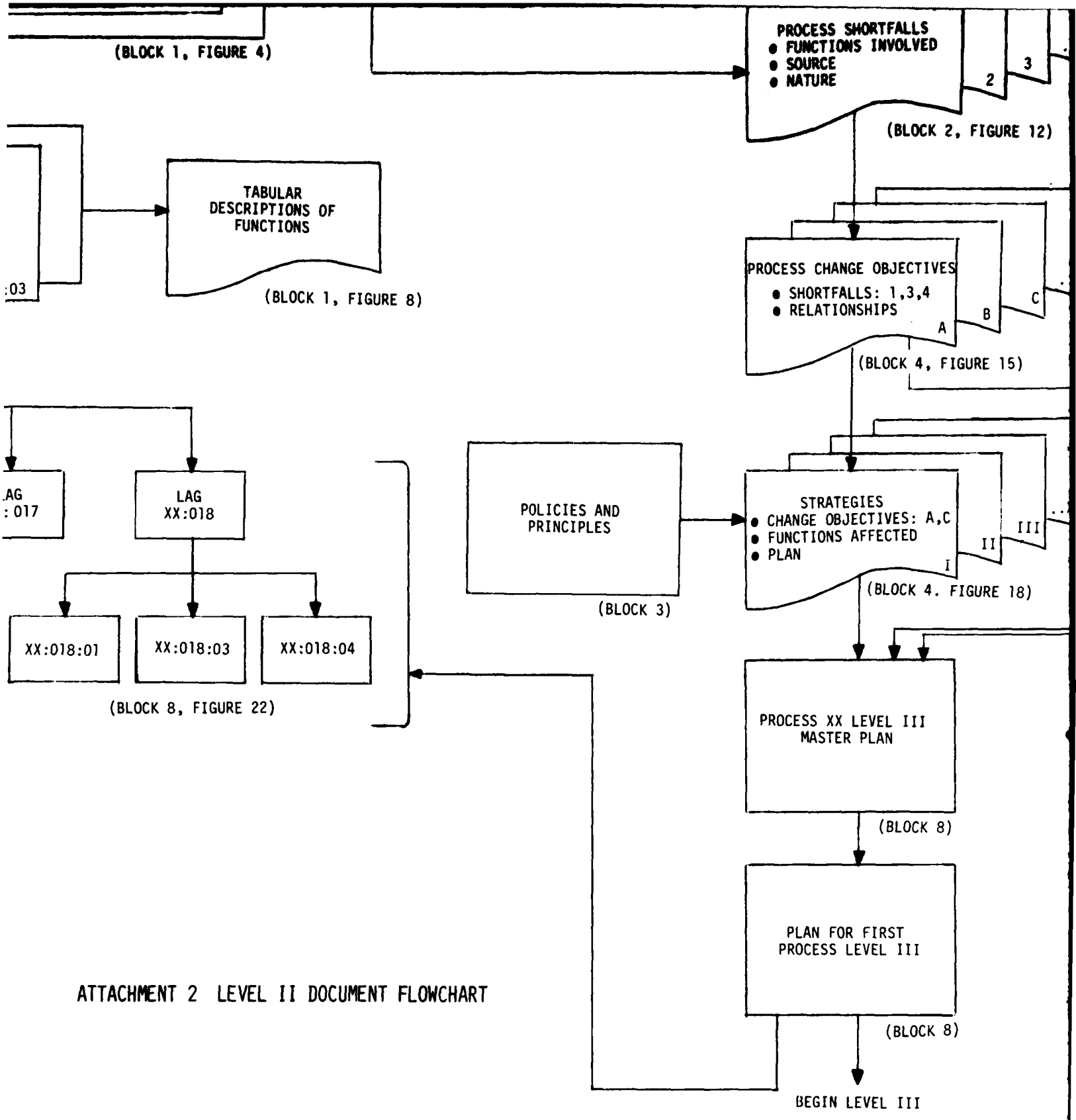
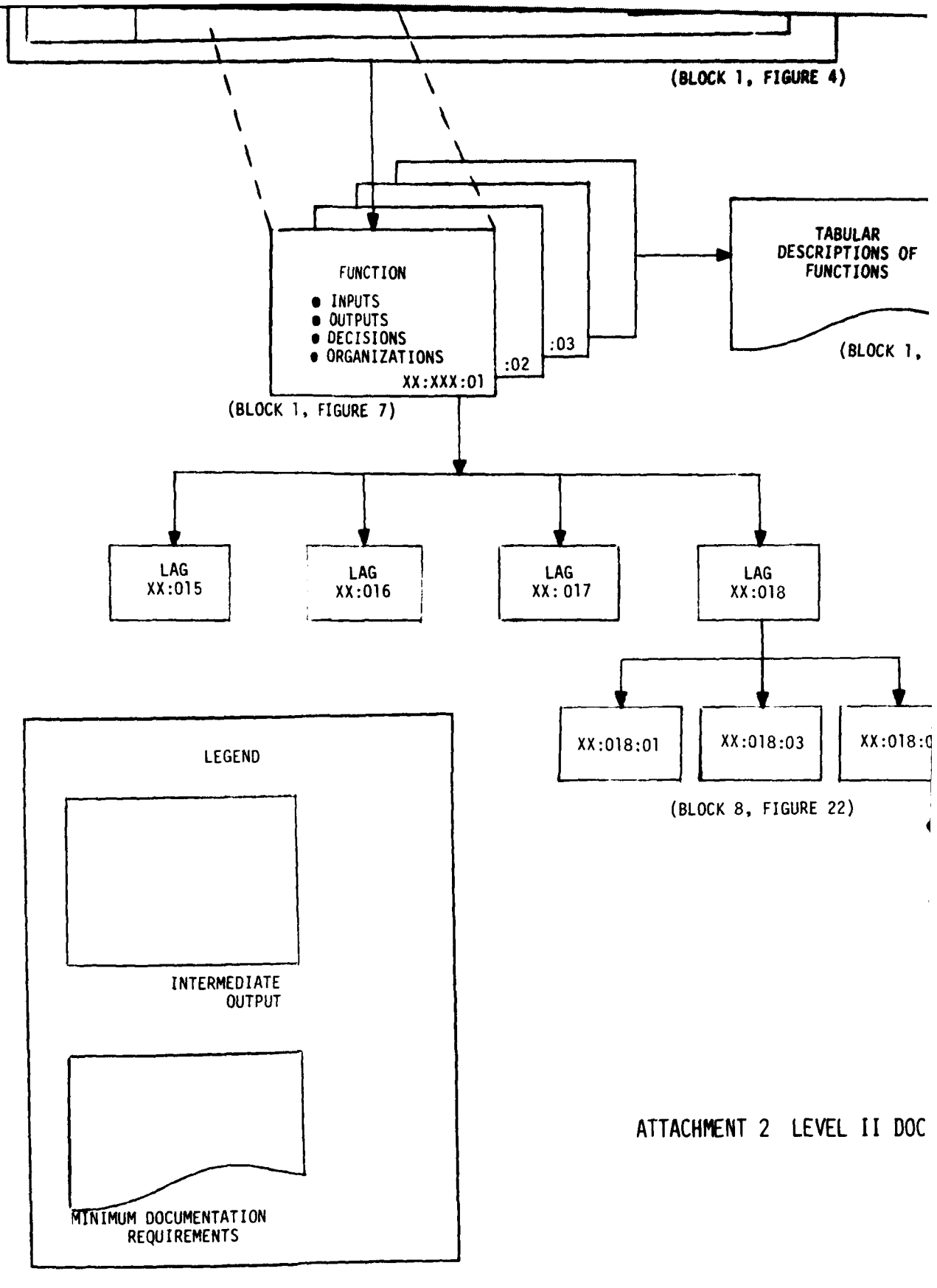
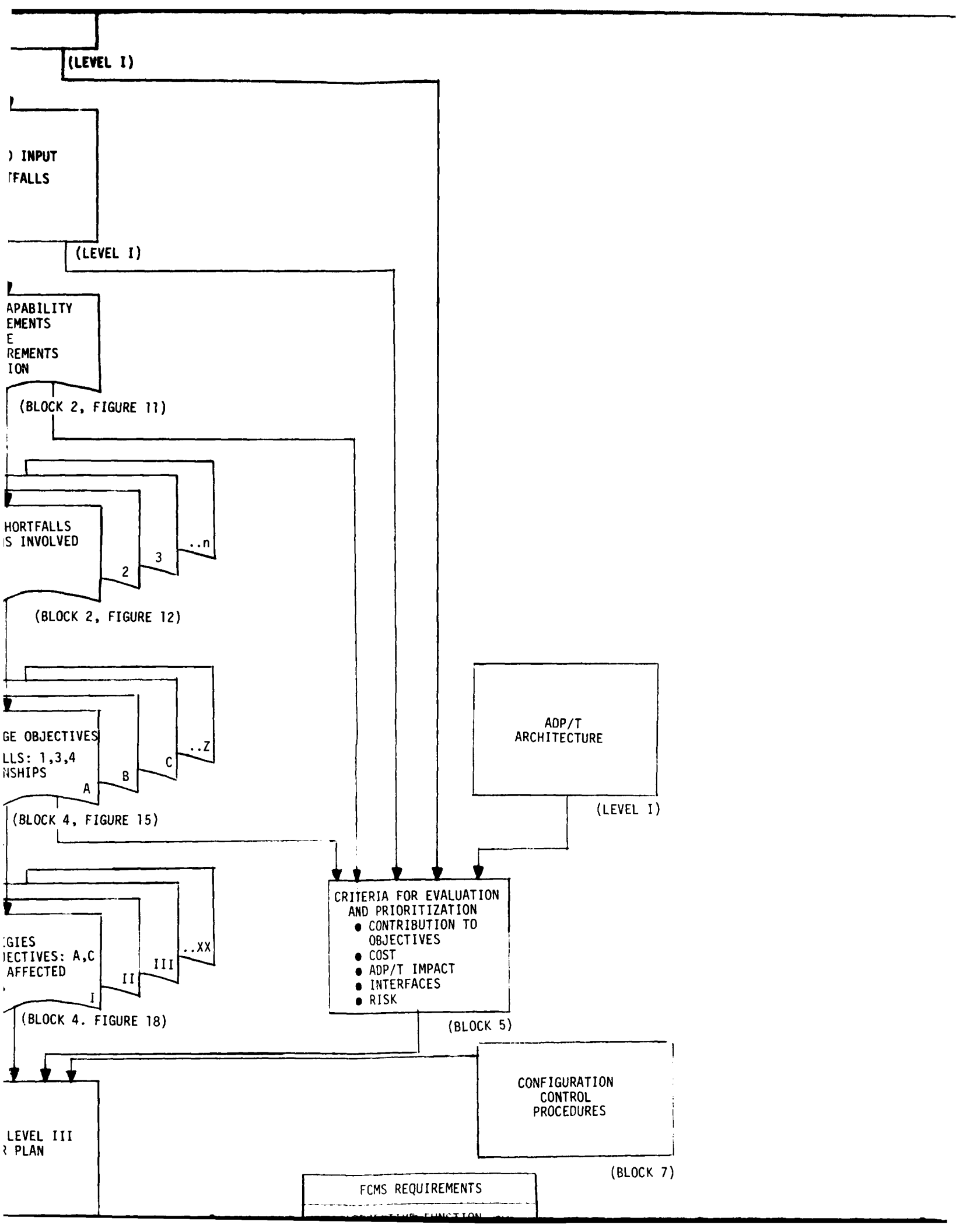
I
II
III
..XX
CK 4. FIGURE 18)
CRITERIA FOR EVALUATION
AND PRIORITIZATION
• CONTRIBUTION TO
OBJECTIVES
• COST
• ADP/T IMPACT
• INTERFACES
• RISK
(BLOCK 5)
III
OCK 8)
CONFIGURATION
CONTROL
PROCEDURES
(BLOCK 7)
II
LOCK 8)
FCMS REQUIREMENTS
OBJECTIVE FUNCTION
✓• Function(s) Performed
• Support Application
• Major Constraint
• Major Dependency
• Major Attribute
✓• Major Inputs/Outputs
• Percent Automated
• LAG Design Characteristics
• Measure of Merit
• Estimated Dollar Investment
Acted Upon
II



ATTACHMENT 2 LEVEL II DOCUMENT FLOWCHART



ATTACHMENT 2 LEVEL II DOC


(LEVEL I)
) INPUT
TFALLS
(LEVEL I)
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REMENTS
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(BLOCK 2, FIGURE 11)
HORTFALLS
S INVOLVED
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3
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(BLOCK 2, FIGURE 12)
GE OBJECTIVES
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A
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(BLOCK 4, FIGURE 15)
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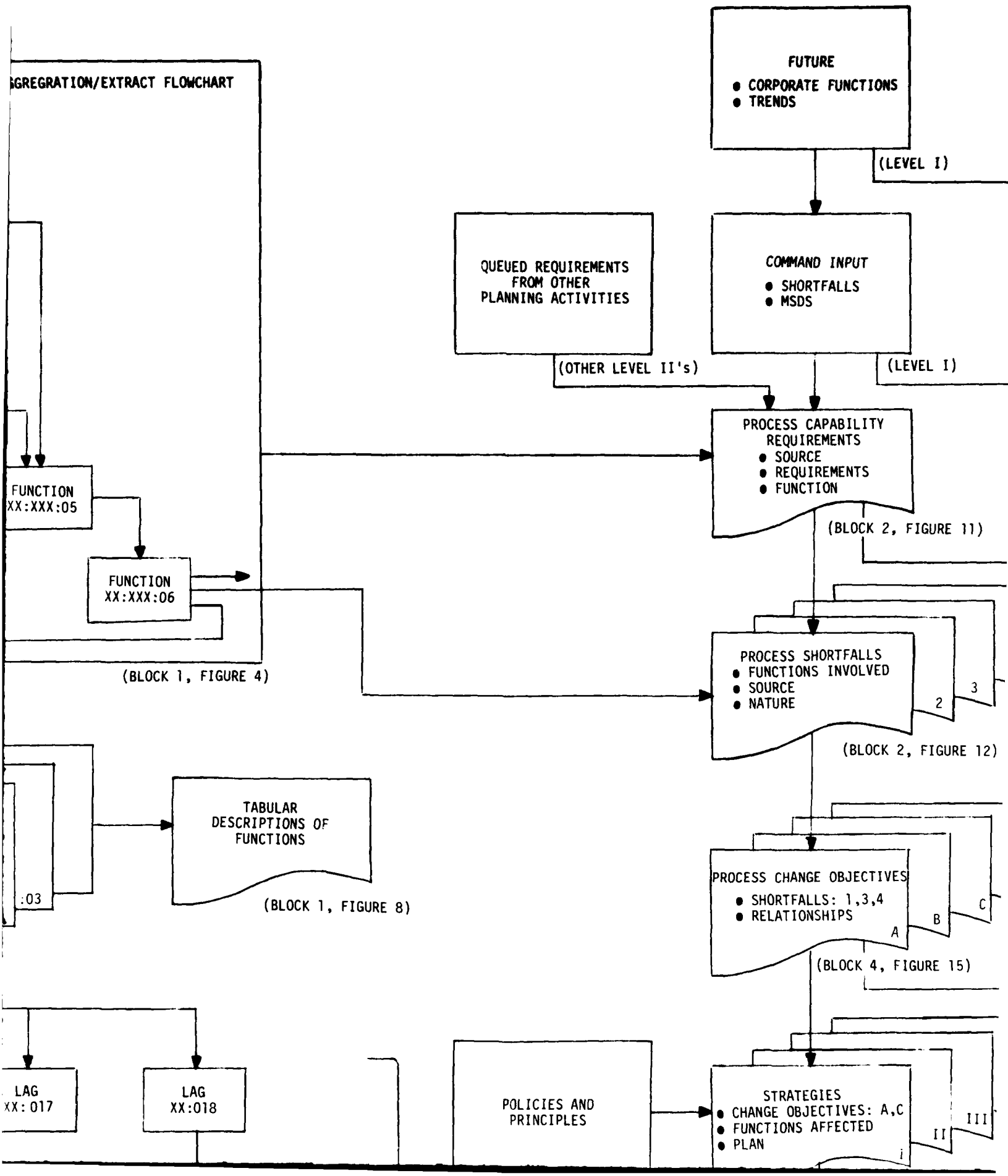
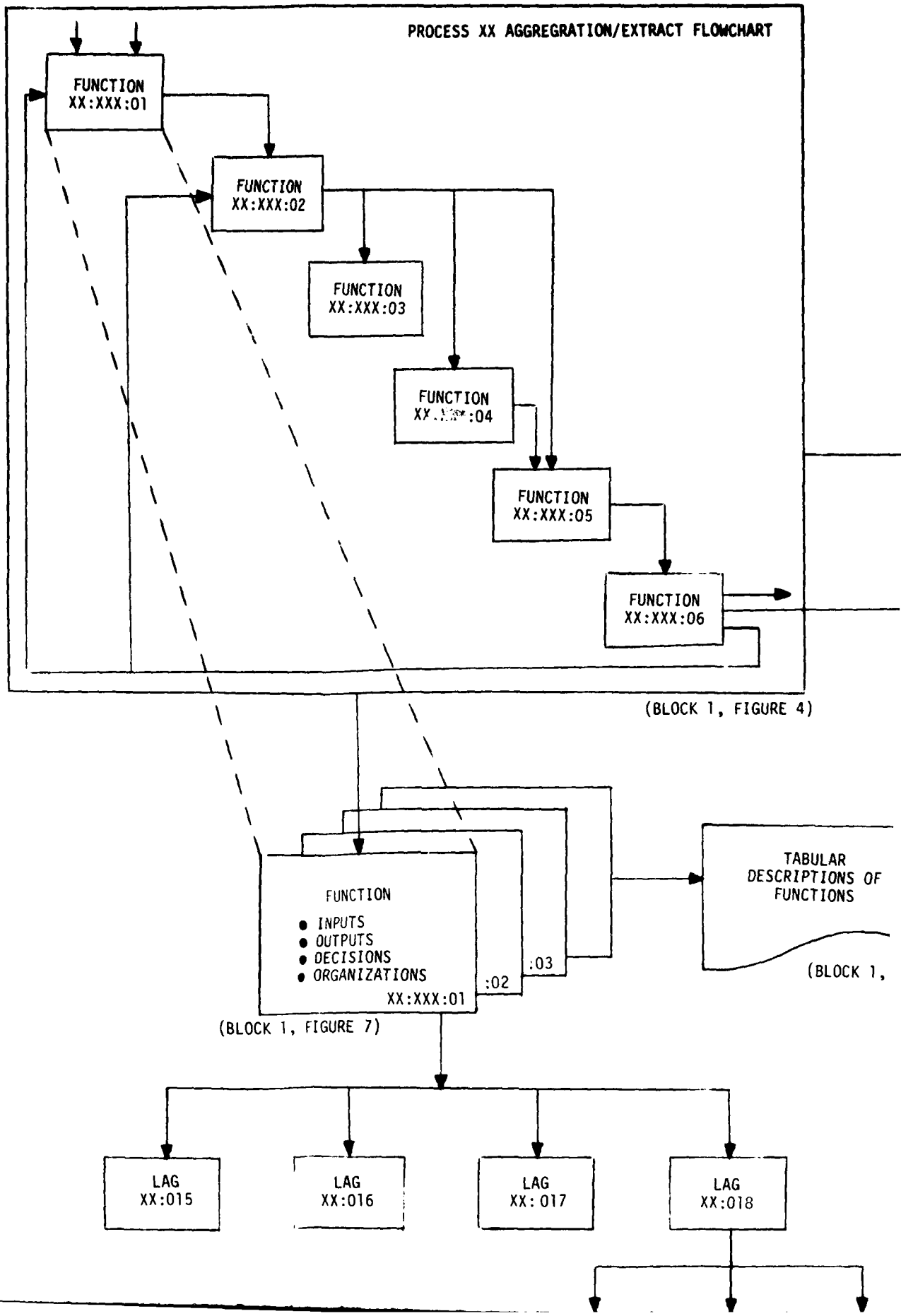
AFFECTED
I
II
III
..XX
(BLOCK 4. FIGURE 18)
ADP/T
ARCHITECTURE
(LEVEL I)
CRITERIA FOR EVALUATION
AND PRIORITIZATION
• CONTRIBUTION TO
OBJECTIVES
• COST
• ADP/T IMPACT
• INTERFACES
• RISK
(BLOCK 5)
CONFIGURATION
CONTROL
PROCEDURES
(BLOCK 7)
LEVEL III
R PLAN
FCMS REQUIREMENTS


GGREGRATION/EXTRACT FLOWCHART
FUTURE
• CORPORATE FUNCTIONS
• TRENDS
(LEVEL I)
QUEUED REQUIREMENTS FROM OTHER PLANNING ACTIVITIES
COMMAND INPUT
• SHORTFALLS
• MSDS
(OTHER LEVEL II's)
(LEVEL I)
PROCESS CAPABILITY REQUIREMENTS
• SOURCE
• REQUIREMENTS
• FUNCTION
(BLOCK 2, FIGURE 11)
FUNCTION XX:XXX:05
FUNCTION XX:XXX:06
(BLOCK 1, FIGURE 4)
PROCESS SHORTFALLS
• FUNCTIONS INVOLVED
• SOURCE
• NATURE
2
3
(BLOCK 2, FIGURE 12)
:03
TABULAR DESCRIPTIONS OF FUNCTIONS
(BLOCK 1, FIGURE 8)
PROCESS CHANGE OBJECTIVES
• SHORTFALLS: 1,3,4
• RELATIONSHIPS
A
B
C
(BLOCK 4, FIGURE 15)
LAG XX:017
LAG XX:018
POLICIES AND PRINCIPLES
STRATEGIES
• CHANGE OBJECTIVES: A,C
• FUNCTIONS AFFECTED
• PLAN
II
III
i


PROCESS XX AGGREGRATION/EXTRACT FLOWCHART
FUNCTION XX:XXX:01
FUNCTION XX:XXX:02
FUNCTION XX:XXX:03
FUNCTION XX:XXX:04
FUNCTION XX:XXX:05
FUNCTION XX:XXX:06
(BLOCK 1, FIGURE 4)
FUNCTION
• INPUTS
• OUTPUTS
• DECISIONS
• ORGANIZATIONS
XX:XXX:01
:02
:03
(BLOCK 1, FIGURE 7)
TABULAR DESCRIPTIONS OF FUNCTIONS
(BLOCK 1,
LAG XX:015
LAG XX:016
LAG XX:017
LAG XX:018